



Vocational Education Program of Studies Implementation Manual

October 1998

Course Models

Kentucky Department of Education
Division of Secondary Vocational Education

Table of Contents

Vocational Education Overview	1-5
Agriculture Education	1-67
Business Education.....	1-43
Family and Consumer Sciences	1-59
Health Sciences	1-67
Industrial Technology Education	1-40
Technology Education.....	1-19
Marketing Education	1-46
Pathway to Careers.....	1-6
Leadership Dynamics.....	1
Jobs for Kentucky's Graduates	1-4
<i>(JKG is not a Vocational Education Program, eligible for Vocational Education funding.)</i>	

VOCATIONAL EDUCATION

Purpose

Vocational Education is an essential component of the high school curriculum. For many students, it represents as much as a third of their high school experience. It is a critical component in meeting the needs of students in academic achievement, career exploration, career preparation, and leadership development. Successful transition to postsecondary education, work, or the military is one of the goals of Kentucky's educational system. The percentage of students making successful transition is a component of the high school accountability index.

High quality vocational education programs are critical in preparing students for further study at the postsecondary level in a technical field or successful entry into the workforce following high school graduation. Therefore, a well-planned sequence of courses, which is focused on a career cluster, has a positive impact on student achievement during high school and student success following high school graduation.

When high-quality vocational programs are integrated with high-quality academic core content, students understand the relevance of curriculum in preparation for their future. Employers are demanding that their future employees be able to apply academic and technical skills to real-world problems that are encountered in the workplace. Occupational outlook information indicates that eighty percent of the jobs will require some level of postsecondary education in a technical field. Vocational Education at the secondary level is critical in meeting this demand.

Significance to the Individual Graduation Plan

The high school graduation requirements include the expectation that all students will develop and follow an Individual Graduation Plan which emphasizes career development. It is important that a sequence of academic and vocational courses provide students the maximum opportunity to develop academic and technical skills based on their career goals within one of the following career clusters:

Agriculture	Human Services
Arts and Humanities	Manufacturing
Business and Marketing	Mining
Communication	Public Service
Construction	Science and Math
Education	Social Sciences
Health Sciences	Transportation

It is essential that administrators, guidance counselors, and faculty work together in identifying courses of study that maximize the students' potential for success at the postsecondary level or entry into the workforce based on their career goals. It is recommended that students develop an Individual Graduation Plan which includes the academic core specified in the graduation requirements and at least four credits within a

career cluster. Examples of recommended courses of study based on career clusters are included in this document within each of the vocational program area sections.

Planning Vocational Education Programs

Vocational education programs and sequences of courses within each program area should be carefully planned in order to maximize the vocational course offerings at any one school. The decisions about which programs and courses that are provided should be made through consultation with employers, faculty, parents, and students. In all cases, vocational programs should be offered that meet the needs of the students and the community. Consideration must be given to offering or providing courses over a two-to-three year period of time, on a rotational basis, in order to maximize the potential for career exploration and preparation for all students. It is not necessary to offer each vocational course every year, especially the preparatory classes, which students may be taking during their sophomore, junior, and senior year. More importantly students should have the opportunity to take vocational courses that will prepare them in the area of their career goals.

This document provides a recommended framework of Vocational Education programs and courses appropriate for specific career clusters. These courses should be selected to complement the required academic courses that prepare students for successful transition to postsecondary education or the workforce within their area of career interest. Recommended courses are included for each of the following areas:

Agriculture	Marketing Education
Business Education	Pathway to Careers
Family and Consumer Sciences	Jobs for Kentucky's Graduates
Health Sciences	
Industrial Education	
Technology Education	

Schools have the flexibility of offering vocational education courses other than those identified in this document. However, it is expected that any vocational course offered would be beneficial to a specific career cluster and the content include broad based technical skills applicable to the workplace.

Vocational Student Organizations

Vocational Student Organizations (VSO's) are recognized as integral to the vocational education program. VSO's provide a unique program of career and leadership development, motivation and recognition exclusively for middle/junior high and secondary students enrolled (or who were enrolled) in vocational programs. It is recommended that all vocational education programs provide access to vocational student organizations.

VSO's are not "clubs" to which only a few vocational students belong. Rather, a VSO is a powerful instructional tool that works best when integrated into the vocational curriculum and classroom by a vocational instructor who is committed to the development of the total person. Vocational educators recognize the importance of providing students

with job and career-related training that complements the job-specific skills needed for entry into a particular field.

The Vocational Student Organizations and their related field are:

DECA	Marketing Education
FBLA	Business Education
FFA	Agriculture Education
FHA	Family and Consumer Sciences Education
HOSA	Health Occupations Education
TSA	Technology Education
VICA	Industrial Technology Education/Secondary and Postsecondary

Vocational Student Organizations are extremely effective as “instructional tools” when used properly by trained vocational educators. VSO’s activities are integral to vocational education when they:

- a. provide instructional strategies used to develop, improve and expand occupational competencies related to a particular vocational subject matter area;
- b. are an extension of the classroom/laboratory instructional program which enriches and enhances classroom/laboratory learning; and
- c. present organized activities for students to gain personal and leadership skills making them more employable, preparing them to become productive citizens, and assisting them in assuming positive roles in the home and community.

Vocational Education’s Role in Tech Prep, High Schools That Work, and School-to-Work:

These initiatives are focused on improving student achievement and successful transition to postsecondary education or work following high school graduation. Some of the key practices which are vital to the success of these initiatives include raising student expectations through a rigorous and relevant curriculum, integration of academics and vocational education, career guidance and planning, articulation to postsecondary education, and work-based learning.

High quality vocational education programs, which are based on industry recognized standards, are critical to the successful implementation of these initiatives. The content of all vocational education courses should be based on challenging curriculum that provides application of mathematics, science, and communication as it is utilized in the modern workplace. The technical content of all vocational education programs should be broad-based to prepare students for multiple jobs within an occupational field.

One of the expectations of the initiatives is to improve transition to postsecondary education through the development of articulation agreements. In an effort to provide articulation on a statewide basis, agreements have been developed in the areas of Early Childhood Education, Electronics/Engineering Technology, and Computer Related Instruction. Schools are encouraged to develop articulation agreements in all technical areas that lead to postsecondary education.

Work-Based Learning

Work-based learning provides experience and activities gained in a work-type environment. Two major categories of work-based learning are school and worksite. Worksite learnings include cooperative education, entrepreneurship, Kentucky Registered Pre-Apprenticeship, clinicals, practicums, internship and work experience. These experiences are to correlate with student's career major/cluster. This correlation is to be a direct relationship between studies in school and the activities at the worksite.

Guidelines for work-site learning:

- Student is to be enrolled in a related class. On-the-job experience must be correlated with the class instruction.
- A training plan is to be developed and on file for each student.
- Supervision of the on-the-job experience is to be provided by a teacher or school-to-work coordinator who may represent one program area or multi-program areas. The coordinator providing the supervision for multi-program areas is to consult with the respective program area regarding supervision concerns, such as student progress, training plans and problems encountered by students and/or work-site mentors.
- Credit is contingent upon two factors: related class and time spent on-the-job during school hours or an equivalent amount of time based on daily work schedules identified in the training plan. Credit may be awarded for both the related class and work-site experiences. The credit for work-site experiences may be awarded based on the number of class hours spent at the worksite on an hour-for-hour basis for a maximum of two (2) credits per related class.

(Consultation with the Division of Secondary Vocational Education is needed if there are any exceptions to these guidelines.)

Schools and employers must adhere to local, state and federal laws such as Child Labor Laws, Fair Labor Standards Act and Workmen's Compensation.

For additional information, refer to *School-to-Work: Practical Guide for Developing Work-Based Learning*, September 1995.

Meeting The Needs For Learner Diversity

In vocational education, provisions must be made to meet the needs for learner diversity in any course in which they are enrolled. All learners are to be provided with support services to assist them in the successful completion of the program.

“All learners” include students who do not need accommodations or modifications, as well as learners with different needs. There may be learners with unique needs related to services already provided through:

- Gifted and Talented Programs
- Special Education or 504 Services
- Title I Programs
- LEP (Limited English Proficiency) Services
- Dropout Prevention Services

Provisions are to be based on needs assessments and Individual Graduation Plan. Student centered planning addresses diversity in learning styles, interest and aptitude. Effective assessment is utilized in identifying student needs.

Two major areas of support to assist students and teachers in vocational programs include the provision of supplementary services and support personnel. Support personnel to help meet the needs of diverse populations may include, but not limited to personnel (e.g. tutors, teacher-aides, interpreters, teachers in Vocational Improvement Programs, Technical Liaison Coordinator, Special Populations Coordinator and mentors). Supplementary services may include special instructional materials, guidance, counseling, coordination, and collaboration with other educational providers, community service agencies and employers.

Vocational Improvement Program (VIP) Supportive Services

The Vocational Improvement Program (VIP) is a broad-based support program designed to provide services to individuals with special educational needs who are enrolled in vocational education programs. The Vocational Improvement Program teacher is assigned students who have been identified through location, evaluation and procedures as required by state/federal regulations for special populations. The types of services the Vocational Improvement Program teachers will provide for students are to be identified in a student(s) Individual Graduation Plan (IGP) or Individual Education Program (IEP).

Services may include the development of instructional strategies, curriculum modification, vocational assessment, and informal counseling. Instruction may be provided in the remediation of basic skills necessary for student to function in the vocational program.

The Vocational Improvement Program teacher is to work cooperatively with academic and vocational teachers, guidance counselors, and paraprofessionals in providing in-class assistance to students and teachers.

The amount of time designated for the services of a Vocational Improvement Program teacher is contingent upon the number of students needing services.

AGRICULTURE EDUCATION

Course Title	Recommended Grade Level						Recommended Credit ***
	7	8	9	10	11	12	
Agri-Biology ****			x	x	x	x	1
Agriscience Exploration	x	x					NA
Intro to Agr Sci & Tech		x	x				1
Agriscience				x	x		1
Animal Science				x	x		1
Equine Science					x	x	1
Animal Technology *					x	x	1
Adv. Animal Science **						x	1
Plant and Land Science				x	x		1
Crop Technology *					x	x	1
Adv. Plant Science **						x	1
Small Power & Equip				x	x	x	1
Agri. Construction Skills *				x	x	x	1
Agri. Structures & Design				x	x	x	1
Agriculture Power and Machinery Operation *				x	x	x	1
Floriculture & Floral Design *				x	x	x	1
Greenhouse Technology *				x	x	x	1
Landscape and Turf Management*				x	x	x	1
Nursery & Orchard Tech.*				x	x	x	1
Agri. Bus/Farm Mgmt *				x	x	x	1
Agri. Employability Skills				x	x	x	1
Agri. Sales & Marketing				x	x	x	1
Agri. Bio-Technology					x	x	1
Agri. Communication				x	x	x	1
Aquaculture				x	x	x	1
Environmental Tech.				x	x	x	1
Food Technology				x	x	x	1
Forestry				x	x	x	1
Small Animal Tech. *				x	x	x	1
Wildlife Resources				x	x	x	1
Adv. Wildlife Mgmt. **						x	1

* These courses can be offered for additional units of credit providing the course content material in each section of the course is different.

** These courses can provide college credit when all course guidelines are met. Instruction provided over KET and coordinated by the local agriculture instructor.

*** All courses may be offered for less than one credit based on the local school schedule.

**** Interdisciplinary course that meets the life science requirement for science credit.

AGRICULTURAL SCIENCE AND TECHNOLOGY OVERVIEW

Agricultural Science and Technology Education is designed to provide career exploration, orientation, and preparation for those students who have an interest in some aspect of agriculture. The knowledge and performance skills required for successful achievement and/or advancement in agricultural occupations constitute the central focus of the program. Students planning to attend college majoring in any field of agriculture or science would benefit from high school agricultural education.

The agricultural industry has many related occupational fields. Farming is no longer agriculture's primary occupation. Currently over 22 percent of all occupations are agriculturally related. Therefore, it is necessary to provide educational opportunities to students within this rapidly growing occupational field.

Each local Agricultural Education Program should offer courses that meet the needs of students and the local agriculture industry. It is recommended that courses be offered in various agricultural areas to provide students an opportunity to explore the various fields of agriculture and develop skills within these areas.

Introduction to Agricultural Science and Technology is recommended as the first course students should enroll in as ninth graders; however, it is not required as a prerequisite to enrollment in other agricultural courses.

All courses consist of classroom instruction, related laboratory experiences, and supervised agricultural experience programs (entrepreneur or cooperative on-the-job placement experiences). Each student enrolled must plan an agricultural experience program that complements the classroom instruction. Time shall be provided in the daily teaching schedule for both classroom instruction and supervision of experience programs. See the **Work-Based Learning Section** in Secondary Vocational Education Work Based Learning Guide for details. In addition to the general guidelines a Supervised Agriculture Experience (SAE) program can be assessed as an Entrepreneurship work-based experience.

FFA (Future Farmers of America) is the vocational student organization available to students enrolled in agricultural education programs. The activities of the organization are an integral part of the instructional program. All students enrolled are encouraged to become members of the FFA and take advantage of the leadership, citizenship, and personal development training offered.

Each approved Agricultural Education Program shall have an active FFA chapter that provides leadership development opportunities for all its members. Agricultural education teachers shall serve as FFA chapter Advisors.

AGRICULTURE CAREER CLUSTERS

CAREER MAJORS

Agribusiness	Horticulture	Production
Agriscience Exploration (7 th -8 th Grade) - (no credit toward career major)		
Recommended Courses	Recommended Courses	Recommended Courses
Introduction to Agricultural Science and Technology Agriscience Ag. Business/Farm Mgmt Ag. Employability Skills Ag. Sales & Marketing Agriculture Bio-Technology Equine Science Greenhouse Technology Aquaculture Agricultural Communications Environmental Technology	Introduction to Ag. Science & Tech. Agriscience Plant/Land Science Floriculture/Floral Design Greenhouse Technology Nursery /Orchard Technology Landscaping/Turf Management Adv. Plant Science Ag. Business Management Ag. Construction Skills Ag. Employability Skills Ag. Sales and Marketing Ag. Structures & Designs Small Power Equipment Environmental Technology Agricultural Bio-Technology Agri-Biology	Intro. to Ag. Science & Tech. Agriscience Animal Science Plant & Land Science Animal Technology Crop Technology Equine Science Agribusiness/Farm Mgmt Adv. Animal Science Adv. Plant Science Agriculture Bio-Technology Aquaculture Ag. Employability Skills Ag. Sales and Marketing Ag. Construction Skills Small Power Equipment Ag. Power & Machinery Operation Ag. Structures & Designs Greenhouse Technology Small Animal Technology Agri- Biology
Elective Courses	Elective Courses	Elective Courses
<ul style="list-style-type: none"> • Leadership Dynamics • Computer Applications • Business Management • Marketing Management * Other Vocational Courses 	<ul style="list-style-type: none"> • Leadership Dynamics • Computer Applications • Business Management • Marketing Management * Other Vocational Courses 	<ul style="list-style-type: none"> • Leadership Dynamics • Computer Applications • Business Management • Marketing Management * Other Vocational Courses

- Other vocational courses directly related to the students Career Major.

AGRICULTURE CAREER CLUSTERS

CAREER MAJORS - Continued

Agricultural Mechanics/ Engineering	Forestry/Resource Management	Ag. Processing/ Distribution
Agriscience Exploration (7 th -8 th Grade) - (no credit toward career major)		
Recommended Courses	Recommended Courses	Recommended Courses
Intro. to Ag. Science and Technology Agriscience Ag. Construction Skills Small Power Equipment Ag. Power and Machinery Operation Ag. Sales and Marketing Ag. Structures and Designs Ag. Employability Skills Ag. Business/Farm Management	Intro. to Ag. Science and Technology Agriscience Forestry Environmental Technology Wildlife Resources Agricultural Bio-Technology Advanced Wildlife Management Plant & Land Science Ag. Employability Skills Small Power Equipment Agri- Biology	Intro. to Ag. Science and Technology Agriscience Ag. Business /Farm Management Ag. Employment Skills Ag. Sales and Marketing Animal Science Plant and Land Science Crop Technology Food Technology Agricultural Bio-Technology Environmental Technology Agri- Biology Small Power Equipment
Elective Courses	Elective Courses	Elective Courses
<ul style="list-style-type: none"> • Leadership Dynamics • Computer Applications • Business Management • Marketing Management * Other Vocational Courses 	<ul style="list-style-type: none"> • Leadership Dynamics • Computer Applications • Business Management • Marketing Management * Other Vocational Courses 	<ul style="list-style-type: none"> • Foods • Leadership Dynamics • Computer Applications • Business Management • Marketing Management * Other Vocational Courses

- Other vocational courses directly related to the students Career Major.

To complete a career major, students must earn four career-related credits within the career major. Three of the four credits must come from the recommended courses for that major. In addition 1999, 2000 and 2001 graduates must also earn 3 math, 2 science, 4 English, and 2 social studies credits. Graduates for 2002 and beyond must meet the new graduation requirements.

NOTE: Agribiology is an interdisciplinary course which meets the graduation requirements for Life Science.

MODEL COURSE SEQUENCE

AGRICULTURE CAREER CLUSTER			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual & Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Introduction to Agricultural Science & Technology	Plant & Land Science	Agricultural Construction Skills	Agricultural Employability Skills
	Small Power & Equipment	Agricultural Communications	Agribusiness/Farm Management
	Introduction to Agriculture Science & Technology	Crop Technology	Agriculture Power & Machinery

AGRICULTURE CAREER CLUSTER			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual & Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Introduction to Agricultural Science & Technology	Agricultural Communications	Agricultural Sales & Marketing	Environmental Technology
	Agriscience	Small Animal Technology	Agricultural Construction Skills
	Introduction to Agricul. Science & Technology	Agri-Biology	Aquaculture

MODEL COURSE SEQUENCE

AGRICULTURE PRODUCTION CAREER MAJOR			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual & Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Introduction to Agricultural Science & Technology	Animal Technology	Agricultural Construction Skills	Advanced Animal Science
	Plant & Land Science	Animal Science	Agribusiness/Farm Management
	Introduction to Agricultural Science & Technology	Agricultural Biology	Agriculture Power & Machinery

AGRICULTURE PRODUCTION CAREER MAJOR			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual & Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Introduction to Agricultural Science & Technology	Plant & Land Science	Crop Technology	Advanced Plant Science
	Small Power & Equipment	Agricultural Structures & Design	Agricultural Construction Skills
	Introduction to Agricul. Science & Technology	Agriculture Sales & Marketing	Agricultural Employability Skills

High School Science Agri-biology

Course Overview:

This one-credit course uses agricultural contexts to present the life science content outlined in the *Program of Studies*. As students study practical agricultural concepts, they apply scientific ways of thinking and working to real-life problems. During their study of agri-biology, students perform many practical tasks. They create models, extract DNA, analyze DNA fingerprints, construct tables and graphs to classify and analyze data, and test soils. Students also participate in cooperative and collaborative groups, use technology to solve problems, and participate in field trips to apply scientific concepts to agricultural and environmental problems. Students develop an understanding of many concepts such as cell structure and function, morphology and physiology of agriculturally significant animals, heredity principles and inheritance patterns, genetic engineering, animal behavior, biological change, interdependence of plants and animals, and the flow of matter and energy through ecosystems.

Models are organized around guiding questions. Guiding questions (in bold print) direct teachers' choices of activities and are the questions students should be able to answer at the end of the course. Essential questions may be included to further focus student learning.

Pages of models are arranged in pairs. On the left-hand page of each pair are guiding (in bold print) and essential questions along with related academic expectations and correlation to the *Program of Studies* and agri-biology content chart. Sample activities and sample extensions for diverse learners are found on the right-hand page. While sample activities address *Program of Studies* content or content from elective areas, they are not intended to be comprehensive. Teachers still are responsible for planning instruction to meet the diverse needs of all their students.

Guiding and Essential Questions:

How do cell structure, function, and processes affect living things?

What is the molecular basis of heredity?

- How does DNA affect organisms' morphology and physiology?

How do behavioral patterns ensure reproductive process?

- How do agriculturalists manipulate reproductive success?

What are the processes of biological change?

- How do agricultural crops and animals reflect diversity in nature?

How are organisms within ecosystems interdependent?

- How do agricultural processes alter ecosystems?
- How are croplands different from natural ecosystems?

How do organ systems work together to keep animals healthy?

What skills and knowledge must I have to be successful in an agricultural career in Kentucky?

**High School Science
Agri-biology**

Academic Expectations	Content/Process
<p>Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>Students will</p> <ul style="list-style-type: none"> • identify functions of plant structures. • identify environmental factors that affect crop production. • identify physical properties and biological components of soils. • identify structural, physiological, and behavioral characteristics of vertebrates and invertebrates. • relate fundamentals of genetics to organisms' morphology, physiology, and inheritance patterns. • communicate recurring themes and processes of biology and chemistry common to all organisms. • identify major farm animal species, appropriate livestock enterprises, and their influence on world agriculture trends. • compare appropriate health programs for animal species. • compare anatomy, breeding, and reproduction of animal species. • explore career opportunities and job qualifications in agri-biology. • integrate Future Farmers of America (FFA) leadership activities.

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p>Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>How do cell structure, function, and processes affect living things?</p>	<p>Students will Program of Studies Life Sciences</p> <ul style="list-style-type: none"> • investigate cell structures and their functions. • investigate cell regulation, differentiation, and how the process of photosynthesis provides a vital connection between the Sun and energy needs of living systems. • investigate photosynthesis, cellular respiration, and energy. <p>Scientific Inquiry All Program of Studies scientific inquiry bullets are included in this guiding question. Applications/Connections</p> <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • analyze how science and technology are necessary for solving issues. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. <p>Agri-biology Content Chart</p> <ul style="list-style-type: none"> • communicate recurring themes and processes of biology and chemistry that are common to all organisms. • relate fundamentals of genetics to organisms', morphology, physiology, and inheritance patterns.

High School Science Agri-biology

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • examine slides of various cell types from multicellular organisms. Discuss relationships between structure of different cell types and their functions. Determine common structures and functions of all cells. Create models of plant and animal cells, using biodegradable materials. Label and color code each organelle and describe its function. Identify organelles common to both and unique to each. • compare functions of cell organelles to school or city structures that have similar functions. Create multimedia presentations showing comparisons. • investigate use of microbes to produce substances needed by other plants, animals, and humans (e.g., insulin). Create illustrated flow charts, demonstrating processes. Write editorials, explaining need for increased funding for basic research in microbiology. <i>Use this activity to develop possible writing portfolio entries (WP - Transactive).</i> • research use of biotechnology and genetic engineering in development of new livestock breeds, plants, and disease control. Evaluate alternatives to genetic engineering methods. Evaluate impact of genetic engineering on their community and predict short- and long-term consequences. Develop policies that regulate use of genetic engineering. Present findings and recommendations to agricultural extension agents. <p>Technology suggestion: <i>Use CD-ROMs, digital cameras, computers, video, and audio to create multimedia presentations for extension agents.</i></p> <ul style="list-style-type: none"> • investigate how and when cells differentiate. Read “How Does a Single Cell Become a Whole Body.” Trace formation of germ layers and identify organ systems that develop from each layer. Create informational bulletin boards, collages, or posters to display in classrooms. 	

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p>Scientific Ways of Thinking and Working, Patterns, Systems, Scale, and Models, Constancy and Change Over Time (2.1 - 2.6)</p>	<p>How do cell structure, function, and processes affect living things?</p>	<p>Students will Program of Studies Life Sciences</p> <ul style="list-style-type: none"> • investigate cell structures, and their functions. • investigate cell regulation, differentiation, and how the process of photosynthesis provides a vital connection between the Sun and energy needs of living systems. <p>Scientific Inquiry <i>All Program of Studies scientific inquiry bullets are included in this guiding question.</i> Applications/Connections</p> <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • examine the interaction between science and technology. • analyze how science and technology are necessary for solving issues. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. <p>Agri-biology Content Chart</p> <ul style="list-style-type: none"> • communicate recurring themes and processes of biology and chemistry that are common to all organisms. • relate fundamentals of genetics to organisms', morphology, physiology, and inheritance patterns.

High School Science
Agri-biology

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • observe chicken embryos at 24, 48, and 72 hours of development. Record observations throughout incubation period, including humidity, temperature, turning rate, weight, and stage of maturity. Compare in graphic organizers features at different stages. Identify body structures of developing embryos and explain their functions. Investigate factors that interfere with embryonic development. Create multimedia presentations for poultry farmers to explain embryonic development. • investigate prenatal and postnatal growth and development. Compare growth rate of organ systems after animals are born. Write summaries in learning logs, describe growth rates of different organ systems and effect growth rate has on animals. 	<p>Julie needs to develop confidence in her ability to contribute positively in class. Her family owns and manages a poultry industry. Julie will arrange for her class to visit and observe the chick incubation and hatching process (<i>Types of extensions: motivation, participation</i>).</p>

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p>Scientific Ways of Thinking and Working, Patterns, Systems, Scale, and Models, Constancy and Change Over Time (2.1 - 2.6)</p>	<p>What is the molecular basis of heredity?</p> <p>How does DNA affect organisms' morphology and physiology?</p>	<p>Students will</p> <p>Program of Studies</p> <p>Life Sciences</p> <ul style="list-style-type: none"> • investigate DNA. • investigate encoding and replication. <p>Scientific Inquiry</p> <p>All <i>Program of Studies</i> scientific inquiry bullets are included in this guiding question.</p> <p>Applications/Connections</p> <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • examine the interaction between science and technology. • explore the impact of science on personal and community health. • analyze how science and technology are necessary for solving issues. • analyze the role science plays in everyday life and compare different careers in science. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. <p>Agri-biology Content Chart</p> <ul style="list-style-type: none"> • relate fundamentals of genetics to organisms' morphology, physiology, and inheritance patterns. • compare anatomy, breeding, and reproduction of animal species.

High School Science Agri-biology

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • examine structure of DNA. Extract DNA from onion cells to observe color, texture, and thread-like structure. Construct models of DNA molecules and show locations of genes. Display models in science labs. Write articles for school newspapers concerning future applications of information derived from the Human Genome Project (<i>WP - Transactive</i>). • research use of DNA fingerprinting in food and animal science. Run DNA fingerprinting through electrophoresis to show how DNA fragmentation analysis can be used for identification. Create multimedia presentations explaining how public health safety workers track spread of bacteria (e.g., <i>Listeria</i>) and other pathogens. Explain procedure and results in learning logs. • read Watson's account of his discovery of DNA structure. Summarize method used and evidence gathered. Investigate lives of other researchers who were involved in discovery (e.g., Francis Crick, Rosalind Franklin, Maurice Wilkins). Write resumes for each researcher. • examine replication. Use models of DNA molecules to show how one DNA molecule can form exact duplicate of itself. • investigate protein synthesis, including transcription and translation. Explore evolutionary significance of common genetic language. Create models to demonstrate process. • distinguish between simple Mendelian inheritance (e.g., coat color in rabbits), multiple allelic inheritance, and polygenic inheritance (e.g., cob length in corn). • create hypothetical corn plants, using different colored paper clips for traits (e.g., height, leaf color, seed color). Record phenotypes and genotypes in learning logs. Investigate traits controlled by extranuclear DNA (e.g., mitochondrial). Determine inheritance patterns in plants (e.g., variegated leaf trait of <i>Brassica rapa</i>). Write feature articles for agricultural journals explaining differences in inheritance patterns (<i>WP - Transactive</i>). • study family relationships of livestock, using phenotypic records extending over two or more generations. Choose traits (e.g., dwarfism in Hereford cattle) and gather information about traits ancestors exhibited to 	<p>Betty and Agnes already have an understanding of DNA as it applies to genetics. They will use the Internet and other sources to discover new or potential uses for DNA technologies. They will communicate with forensic medicine specialists about their findings and create presentations to share with their class (<i>Types of extensions: magnitude, motivation, resources and materials, complexity</i>).</p> <p>Bryan and Melissa are able to learn with their peers, but have difficulty following directions. They will pair with classmates to investigate phenotypic and genotypic inheritance patterns (<i>Types of extensions: complexity, resources and materials</i>).</p>

complete pedigrees. Use Punnett squares to determine apparent inheritance patterns for that trait.	
--	--

**High School Science
Agri-biology**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale, and Models, Constancy and Change Over Time (2.1 - 2.6)</p>	<p>What is the molecular basis of heredity?</p> <p>How does DNA affect organisms' morphology and physiology?</p>	<p>Students will Program of Studies Life Sciences</p> <ul style="list-style-type: none"> • investigate DNA. • investigate encoding and replication. <p>Scientific Inquiry <i>All Program of Studies scientific inquiry bullets are included in this guiding question.</i></p> <p>Applications/Connections</p> <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • examine the interaction between science and technology. • explore the impact of science on personal and community health. • analyze how science and technology are necessary for solving issues. • analyze the role science plays in everyday life and compare different careers in science. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. <p>Agri-biology Content Chart</p> <ul style="list-style-type: none"> • relate fundamentals of genetics to organisms' morphology, physiology, and inheritance patterns. • compare anatomy, breeding, and reproduction of animal species.

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • use sire summaries to distinguish between performance testing and progeny testing. Examine copies of pedigree papers of several animals of same breed. Compare animals based on pedigrees and performance records. Develop reports for agricultural advisory committees on beef breed improvement in their county. Investigate benefits of hybrid vigor. • research physical characteristics of economically important agricultural animals (e.g., sheep, cattle, swine). Determine whether traits are influenced more by genetics or environment. • obtain copies of dairy cattle sire catalogs and lineage classification data from dairy herds. Using data on females from herd records and data on sires from catalogs, choose most desirable sires for cows in that herd. Write introductions for catalogs describing how the information contained within can be used to improve herd quality (<i>WP - Transactive</i>). 	

**High School Science
Agri-biology**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale, and Models, Constancy and Change Over Time (2.1 - 2.6)</p>	<p>How do behavioral patterns ensure reproductive success?</p> <p>How do agriculturalists manipulate reproductive success?</p>	<p>Students will</p> <p>Program of Studies</p> <p>Life Sciences</p> <ul style="list-style-type: none"> • investigate cell regulation, differentiation, and how the process of photosynthesis provides a vital connection between the Sun and energy needs of living systems. • investigate behavioral responses. • analyze patterns of behavior. <p>Scientific Inquiry</p> <p>All Program of Studies scientific inquiry bullets are included in this guiding question.</p> <p>Applications/Connections</p> <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • examine the interaction between science and technology. • analyze how science and technology are necessary for solving issues. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. <p>Agri-biology Content Chart</p> <ul style="list-style-type: none"> • compare anatomy, breeding, and reproduction of animal species. • identify functions of plant structures. • identify environmental factors that affect crop production.

High School Science

Agri-biology

deal with animal behaviors (e.g., feeding schedules, facility designs). Observe flock or herd animals, listing observed behaviors and determine which behaviors are instinctive and which are learned. Shadow county extension agents or veterinarians to determine how agriculturalists deal with problems related to livestock behaviors.	
---	--

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p>Scientific Ways of Thinking and Working, Patterns, Systems, Scale, and Models, Constancy and Change Over Time (2.1 - 2.6)</p>	<p>How do behavioral patterns ensure reproductive success?</p> <p>How do agriculturalists manipulate reproductive success?</p>	<p>Students will</p> <p>Program of Studies</p> <p>Life Sciences</p> <ul style="list-style-type: none"> • investigate behavioral responses. • analyze patterns of behaviors. <p>Scientific Inquiry</p> <p>All <i>Program of Studies</i> scientific inquiry bullets are included in this guiding question.</p> <p>Applications/Connections</p> <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • examine the interaction between science and technology. • analyze how science and technology are necessary for solving issues. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. <p>Agri-biology Content Chart</p> <ul style="list-style-type: none"> • compare anatomy, breeding, and reproduction of animal species. • identify functions of plant structures. • identify environmental factors that affect crop production.

**High School Science
Agri-biology**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • compare size and shape of sperm and egg cells of animal species. Check semen samples under microscopes for motility. Determine if any sperm cells are abnormal. Observe color, mobility, progressiveness, and abnormalities (e.g., tailless, two tails, two heads, pear-shaped heads). Examine prepared slides of ovary. Sketch ovary, including mature follicles and eggs. Prepare lab reports comparing features of each reproductive cell and explaining how traits of each help them perform their functions. • investigate codominance in livestock (e.g., shorthorn cattle). Design experiments to determine probability of different phenotypic expressions (e.g., coat color) in first and second generation offspring. Write lab reports detailing procedures and results to share with peers. <p><i>Technology suggestion: Use integrated software package to create tables and charts for analysis.</i></p> <ul style="list-style-type: none"> • research use of different breeding procedures in agricultural animals (e.g., horses, turkeys) and crops (e.g., corn). Write to breed associations to request information on disqualification of animals or plants for different breeds. Compare information from various associations. Interview livestock producers to determine traits for which they selectively breed. Investigate preferred plant traits in economically important crops. Research impact of selective breeding on agricultural animals and crops. Debate ethical and environmental implications of selective breeding. • demonstrate insemination process using female reproductive tracts acquired from biological supply houses or local slaughter houses. Identify different parts of female reproductive tracts. Identify appropriate insemination tools needed. Use tools to demonstrate insemination process, by placing dye solution in reproductive tract. Follow accepted procedures to dissect tracts to locate point where dye was deposited. Sketch reproductive tracts, identify parts, and describe steps of insemination process in lab reports. • survey local livestock producers to determine artificial insemination and embryo transfer techniques used. 	<p>Justin and Juanita have difficulty following directions. They are given instructions one day prior to assignment. They will be paired with peers to complete insemination procedures (<i>Types of extensions: time, motivation, environment, participation, demonstration of knowledge</i>).</p>

Investigate reasons for employing these techniques. Compare costs of semen and embryos from different breeders and examine reasons for cost differences. Write feature articles for agricultural journals explaining advantages and disadvantages of techniques (<i>WP - Transactive</i>).	
--	--

**High School Science
Agri-biology**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working Patterns, Systems, Scale, and Models, Constancy and Change Over Time (2.1 - 2.6)</p>	<p>What are the processes of biological change?</p> <p>How do agricultural crops and animals reflect diversity in nature?</p>	<p>Students will Program of Studies Life Sciences</p> <ul style="list-style-type: none"> • examine how species change over time. • examine diversity and classification. <p>Scientific Inquiry All <i>Program of Studies</i> scientific inquiry bullets are included in this guiding question.</p> <p>Applications/Connections</p> <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • examine the interaction between science and technology. • analyze how science and technology are necessary for solving issues. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. <p>Agri-biology Content Chart</p> <ul style="list-style-type: none"> • identify functions of plant structures. • identify structural, physiological and behavioral characteristics of vertebrates and invertebrates. • relate fundamentals of genetics to organisms' morphology, physiology, and inheritance patterns.

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • investigate history of domestication of economically important plants (e.g., wheat, corn, sugar cane). Create illustrated time lines to document milestones. <p><i>Technology suggestion: Use software to create time lines.</i></p> <ul style="list-style-type: none"> • create plant models, labeling, describing, and explaining each structure. Write children's books describing functions of plant parts (<i>WP - Transactive</i>). • examine plant cell structures with light microscopes. Create cell models, labeling basic cell structure (e.g., cell wall, cell membrane, nucleus, cytoplasm, chloroplast, vacuoles). Describe functions of cell structures on mechanical rather than biochemical level (e.g., nucleus and control of cell function, chloroplast and photosynthesis, mitochondria and respiration, cell membrane and transport). <p><i>Technology suggestion: Use light microscope or flex cams to examine cell structures.</i></p> <ul style="list-style-type: none"> • investigate plant defenses (e.g., poisons, thorns, hormones) and coevolution between plants and herbivores. Identify selective pressures acting on both herbivores and plants. Write news articles for agricultural journals explaining how plants reduce predation (<i>WP - Transactive</i>). • investigate irradiation on plant seeds to induce mutations and produce new varieties (e.g., peppers, soybeans, cotton, sugar cane, sunflowers, irises, roses, chrysanthemums, azaleas). Write articles about benefits and drawbacks of irradiation (<i>WP - Transactive</i>). 	<p>Willie and Ann understand cell structure and have participated in class discussions. They have difficulty manipulating objects and will work with small groups to produce models of cells (<i>Types of extensions: resources and materials, complexity, demonstration of knowledge</i>).</p>

**High School Science
Agri-biology**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale, and Models, Constancy and Change Over Time (2.1 - 2.6)</p>	<p>What are the processes of biological change?</p> <p>How do agricultural crops and animals reflect diversity in nature?</p>	<p>Students will Program of Studies Life Sciences</p> <ul style="list-style-type: none"> • examine how species change over time. • examine diversity and classification. <p>Scientific Inquiry All <i>Program of Studies</i> scientific inquiry bullets are included in this guiding question.</p> <p>Applications/Connections</p> <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • examine the interaction between science and technology. • analyze how science and technology are necessary for solving issues. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. <p>Agri-biology Content Chart</p> <ul style="list-style-type: none"> • identify functions of plant structures. • identify structural, physiological and behavioral characteristics of vertebrates and invertebrates. • relate fundamentals of genetics to organisms' morphology, physiology, and inheritance patterns.

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • explore diversity among plants. Identify major highlights of plant evolution (e.g., vascular tissue) and impact on plant diversification. Identify divisions within plant kingdom and describe their characteristics and significant adaptations. Use graphic organizers to compare characteristics. Create bulletin boards, collages, or multimedia presentations on economic or medical importance of plants from each division, including local agricultural products. • compare monocot and dicot seeds. Place corn and bean seeds between wet blotters or paper towels and keep moist. Bisect and compare seeds after one day and after five days. Sketch, identify and label structures, and describe function of seed structures. • investigate evolution of various species (e.g., horses). Create murals depicting phylogenetic trees. Discuss how adaptations are advantageous to increased survival. • investigate early systems of classification (e.g., Aristotle). Compare Aristotle's system to that of Linnaeus. Create dichotomous keys for domestic plants and animals. Display in science lab. • examine differences between tamed and domesticated animals. Create collages, bulletin boards, or multimedia presentations for class members, explaining differences. Compare traits of wild and domesticated pigs. Identify traits that resulted from natural selection or selective breeding. Explain how wild pigs are adapted to their environment. Research history of breeds of livestock, including origin of animals, traits that were selected for through natural selection, traits that were selected for through selective breeding, and changes of breeds over time. Create illustrated histories of breeds to display at county fairs. <p><i>Technology suggestion: Use CD-ROMs, digital cameras, computers, video, and audio to create multimedia presentations.</i></p>	<p>Bambi and Renee are interested in the domestication of certain animals. They finish their class assignment ahead of other students and develop short skits to share with the class on the domestication of cats and dogs (<i>Types of extensions: motivation, complexity, demonstration of learning</i>).</p>

**High School Science
Agri-biology**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working Patterns, Systems, Scale, and Models, Constancy and Change Over Time (2.1 - 2.6)</p>	<p>How are organisms within ecosystems interdependent?</p> <p>How do agricultural processes alter ecosystems?</p> <p>How are croplands different from natural ecosystems?</p>	<p>Students will Program of Studies Life Sciences</p> <ul style="list-style-type: none"> • investigate cell regulation, differentiation, and how the process of photosynthesis provides a vital connection between the Sun and energy needs of living systems. • investigate the cycle of atoms and molecules within the biosphere. • analyze energy flow through ecosystems. • examine the factors that influence the interactions between organisms. • explore how human activities alter ecosystems. • recognize that living systems require energy. • analyze the flow of matter and energy. <p>Scientific Inquiry <i>All Program of Studies scientific inquiry bullets are included in this guiding question.</i></p> <p>Applications/Connections</p> <ul style="list-style-type: none"> • explore the impact of science on personal and community health. • recognize how science influences human population growth. • use science to analyze the use of natural resources. • investigate how science can be used to solve environmental quality problems. • use science to investigate hazards. • analyze how science and technology are necessary for solving issues. <p>Agri-biology Content Chart</p> <ul style="list-style-type: none"> • identify environmental factors that

		<p>affect crop production.</p> <ul style="list-style-type: none"> • identify physical properties and biological components of soils.
--	--	---

High School Science Agri-biology

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • investigate nitrogen cycle within biosphere. Examine nodules from roots of legumes (e.g., clover, alfalfa) under microscopes after staining with methylene blue. Sketch nitrogen-fixing bacteria. Write summaries in learning logs about importance of bacteria to nitrogen cycle. • investigate ways to change pH of soils. Interview agricultural extension agents to determine methods of changing pH. Analyze cost and efficacy of each method. Create how-to articles for agricultural publications (<i>WP - Transactive</i>). • design experiments to model processes that led to Dust Bowl of 1930s. Research soil conservation practices and techniques to prevent another Dust Bowl. Compare conservation practices and techniques of past with those of present in multimedia presentations. • investigate physical and chemical characteristics of ponds, springs, and rivers near agricultural cropland. Examine dissolved oxygen levels, turbidity, and bacterial growth. Compare data with students in other regions of Kentucky via Kentucky Water Watch Program. • investigate effects of pollutants (e.g., acid rain) on agricultural crops. Design and conduct investigations to measure acidity of rain water. Map Kentucky rain water acidity levels and compare crop loss due to pollutants with other Kentucky students. • investigate early and modern pesticides, comparing benefits of each. Debate effects of pesticides on beneficial organisms (e.g., soil invertebrates, insects, birds, mammals). Research pests (e.g., fungi, grasshoppers, corn borers) that damage major world crops. Research use of biological control of insects (e.g., ladybugs to control aphids). Produce articles for agriculturalists advocating biological control of pests (<i>WP - Transactive</i>). • investigate benefits and losses to crops due to recent weather patterns (e.g., floods, drought, wind, hail). Create collages of current news articles on agricultural impact by environmental forces. Research weather prediction techniques. Research current studies on causes of weather patterns (e.g., Arizona, 1998) and discuss validity of studies. Interview local agriculturalists to determine impact of economic losses 	

due to weather. Write articles on impact weather has on agricultural crops and animals (<i>WP - Transactive</i>).	
---	--

**High School Science
Agri-biology**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale, and Models, Constancy and Change Over Time (2.1 - 2.6)</p>	<p>How do organ systems work together to keep animals healthy?</p>	<p>Students will Program of Studies Life Science <ul style="list-style-type: none"> • investigate cell structures and their functions. Scientific Inquiry <i>All Program of Studies scientific inquiry bullets are included in this guiding question.</i> Applications/Connections <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • examine the interaction between science and technology. • explore the impact of science on personal and community health. • use science to investigate hazards. • analyze how science and technology are necessary for solving issues. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. Agri-biology Content Chart <ul style="list-style-type: none"> • identify structural, physiological, and behavioral characteristics of vertebrates and invertebrates. </p>

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • identify and describe organs and organ systems and anatomical structures of important agricultural animals. List organs common to all and those that differ. Explain physiological functions of each structure. Research common diseases that affect each system and methods used to diagnose and treat diseases. Create brochures to be distributed at county extension offices that describe diseases and treatments (<i>WP - Transactive</i>). 	

**High School Science
Agri-biology**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale, and Models, Constancy and Change Over Time (2.1 - 2.6)</p>	<p>What skills and knowledge must I have to be successful in an agricultural career in Kentucky?</p>	<p>Students will Program of Studies Life Sciences</p> <ul style="list-style-type: none"> • examine the factors that influence the interactions between organisms. <p>Scientific Inquiry <i>All Program of Studies scientific inquiry bullets are included in this guiding question.</i> Applications/Connections</p> <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • examine the interaction between science and technology. • explore the impact of science on personal and community health. • analyze how science and technology are necessary for solving issues. • analyze the role science plays in everyday life and compare different careers in science. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. <p>Agri-biology Content Chart</p> <ul style="list-style-type: none"> • compare appropriate health programs for animal species. • identify major farm animal species, appropriate livestock enterprises, and their influence on world agriculture trends. • explore career opportunities and job qualifications in agri-biology. • integrate FFA Leadership activities.

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • examine contributions of livestock industry to society. Investigate use of animals and animal by-products in medical research and development of food products. Prepare multimedia presentations showing uses of animals and animal by-products. <p><i>Technology suggestion: Use CD-ROMs, digital cameras, computers, video, and audio to create multimedia presentations.</i></p> <ul style="list-style-type: none"> • investigate other issues of animal welfare (e.g., raising animals in confinement, animal health, management practices, continuous ingestion of antibiotics). Investigate role of food pyramid in determining proper diet selections for animals. Examine laws governing use of agricultural animals. Role-play public hearing between National Cattlemen's Association, United States Department of Agriculture official, People for the Ethical Treatment of Animals, and different types of vegetarians. Debate animal welfare issues. • search Internet for alternatives to Kentucky's tobacco crop. Investigate new and non-traditional crops as possible solutions. Research economic and social implications. Write letters to congressmen explaining results of research and recommendations for alternative crops (<i>WP - Transactive</i>). <p><i>Technology suggestions: Use Internet to conduct research. Use e-mail to communicate with congressmen.</i></p> <ul style="list-style-type: none"> • research scientific technologies (e.g., hydroponics, tissue culturing) that enhance agricultural endeavors. Create models of food supply systems using hydroponics and tissue culturing technology. Compare hydroponics method of growing crops to traditional methods. Debate advantages (e.g., reduction of labor costs) and disadvantages (e.g., disease introduction). 	<p>Teresa and Larry will create brochures to promote the introduction of new economic and agricultural crops for Kentucky. They will collaborate with agriculturalists (e.g., universities, colleges, county extension offices) to discover feasibility of their suggestions (<i>Types of extensions: motivation, complexity, demonstration of learning, resources and materials</i>).</p>

AGRI-BIOLOGY

Course Title

Course Description: Content includes cell structure and anatomy, behavior of organisms, basic heredity principals, biological change, interdependence of living systems, and matter, energy and organization in living systems. Practical agricultural concepts will connect scientific inquiry and concept understanding. Content may be enhanced by appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have an agricultural experience program.

Academic Expectations	Content/Process
<p>2.4,2.5,2.6</p> <p>2.2, 2.3</p> <p>2.1,2.3,2.6</p> <p>2.2,2.3,2.5</p> <p>2.3, 2.5</p> <p>2.2,2.5,2.6,5.1</p> <p>2.2, 2.3</p> <p>2.2,2.5,2.6</p> <p>2.18,2.19,2.20</p> <p>2.2,5.4,5.1,6.3</p> <p>2.3,2.4,5.4,5.5</p> <p>2.4,2.5,2.6</p> <p>2.2,2.3,2.4,2.5</p> <p>1.11,2.13,2.18</p> <p>1.12,2.16,2.37</p>	<p>THE CELL Analyze cell structure, function and process.</p> <p>THE BEHAVIOR OF ORGANISMS</p> <ul style="list-style-type: none"> - Relate principals of plant ecology, classification and adaptation to other ecosystems. - Identify functions of plant structure, reproduction, growth and environmental factors in relation to plant production. - Identify biological and physical properties of soil and chemicals in plants production. - Identify the structural physiological and behavioral characteristics of vertebrates and invertebrates. <p>The Molecular Basis of Heredity</p> <ul style="list-style-type: none"> - Relate fundamentals of genetics to an organism's morphology, physiology and inheritance patterns. <p>Biological Change</p> <ul style="list-style-type: none"> - Communicate recurring themes and processes of Biology and Chemistry that are common to all organisms. - Explain the processes and theories concerning the origin of life, evolution, and classification of species. <p>Interdependence</p> <ul style="list-style-type: none"> - Identify major farm animal species and appropriate livestock enterprises and their influence on world agriculture trends. - Contrast appropriate health programs or various animal species including humans. - Contrast anatomy, breeding, and reproduction of various animal species. <p>Matter, Energy, and Organization of Living Systems</p> <ul style="list-style-type: none"> - Analyze cell structure, function and processes. - Predict energy flow through various food chains and webs. <ul style="list-style-type: none"> • Explore career opportunities and job qualifications in agri-biology. • Determine FFA Leadership activities to be integrated into the course.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Agriscience Exploration

Course Description: The course content focuses on exploring current and future agricultural careers as well as the historical events that molded the industry. The local agricultural industry is emphasized, and the local high school program and FFA activities are featured. Leadership development will be provided through FFA. Classroom, laboratory and field trip experiences should be provided.	
Academic Expectations	Content/Process
1.1, 2.36, 2.38	Students will <ul style="list-style-type: none"> summarize careers in agriculture and list verifiers of workplace readiness.
1.1, 2.3, 2.20	<ul style="list-style-type: none"> review the historical importance of the agricultural industry and how agriculture shaped world history.
2.36, 3.4	<ul style="list-style-type: none"> identify and research careers in agriculture.
3.7, 5.1	<ul style="list-style-type: none"> conduct a career self-analysis.
5.4	<ul style="list-style-type: none"> visit the agricultural department at the high school and become acquainted with the curricula.
3.1	<ul style="list-style-type: none"> recognize the opportunities for leadership development provided by the FFA organization.
2.7	<ul style="list-style-type: none"> relate the importance of agriculture in the local, state, national, and global economies.
1.3	<ul style="list-style-type: none"> identify tools, equipment and materials common in agriculture.
2.1,2.2,2.16	<ul style="list-style-type: none"> identify current, major contemporary issues in agriculture.
1.16	<ul style="list-style-type: none"> give examples of the new technological developments in agriculture.
2.29	<ul style="list-style-type: none"> examine basic home and farm safety.
Connections <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Introduction To Agricultural Science and Technology

<p>Course Description: This course introduces students to the various segments of the agricultural industry. Agricultural career opportunities will be emphasized. Basic animal science, plant and land science, and agricultural mechanics skills will be introduced. The selection and planning of a supervised agricultural experience program and related record keeping will be presented. Leadership development will be provided through FFA. Students will receive personal guidance and counseling with preparatory instructional program selection.</p>	
Academic Expectations	Content/Process
1.1, 2.36, 2.38	<p>Students will</p> <ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
2.13, 2.18, 3.0	<ul style="list-style-type: none"> develop a supervised agricultural experience programs including use of record keeping.
1.12, 1.9, 2.38	<ul style="list-style-type: none"> explore basic agricultural skills needed including: math, communication, and employability skills.
2.1, 2.3, 2.6	<ul style="list-style-type: none"> identify and examine general soil and plant sciences.
2.1, 2.3, 2.6	<ul style="list-style-type: none"> identify and examine general animal sciences.
2.37, 2.4, 2.7	<ul style="list-style-type: none"> demonstrate basic agricultural mechanics and construction skills.
2.6, 2.19, 2.20	<ul style="list-style-type: none"> investigate basic environmental, food and fiber interrelationships.
1.11, 2.13, 2.18	<ul style="list-style-type: none"> maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12, 2.16, 2.37	<ul style="list-style-type: none"> participate in FFA leadership activities which are integrated into the course.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Agriscience

<p>Course Description: Agriscience introduces the scientific agricultural approach to animal science and selection, plant and land science, and agricultural mechanics. Agricultural career opportunities will be emphasized in each class. Laboratory experiences relating to basic and current technology will be part of the program. Content may be enhanced by utilizing appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program and keep appropriate records.</p>	
Academic Expectations	Content/Process
1.1, 2.36, 2.38	<p>Students will</p> <ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
2.10, 2.37, 2.4	<ul style="list-style-type: none"> demonstrate basic agriculture mechanics and agricultural construction skills.
2.1, 2.3, 2.6	<ul style="list-style-type: none"> assess soil and plant science interrelationships.
2.1, 2.3, 2.6	<ul style="list-style-type: none"> determine principles of animal production.
2.20, 2.6, 2.19	<ul style="list-style-type: none"> investigate the impact of human activities on the environment and resource conservation and stewardship.
1.16, 2.3	<ul style="list-style-type: none"> examine the electronic and bio-technical advancements in agriculture.
2.19	<ul style="list-style-type: none"> interpret the impact of globalization on agriculture.
1.11, 2.13, 2.18	<ul style="list-style-type: none"> maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12, 2.16, 2.37	<ul style="list-style-type: none"> utilize activities of FFA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply science, math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Animal Science

Course Description: Animal Science develops basic knowledge and skills pertaining to livestock identification, selection, nutrition, reproduction and genetics, health management, and marketing of one or more species of farm animals. The latest biotechnological applications will be included. The content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.	
Academic Expectations	Content/Process
1.1, 2.36, 2.38 2.20,2.36,4.5 2.3, 5.3 2.3, 2.6, 2.20 1.11,2.3,4.2,4.6 2.1,2.2,2.3,5.4 2.1,2.2,2.3,5.3 2.1,2.2,2.6, 5.1 2.1,2.2,2.3,2.4 2.2, 2.16, 2.29 2.13, 2.18 1.11, 2.13,2.18 1.12,2.16,2.37 1.9, 1.10, 1.12	Students will <ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster. relate the benefits of animals to human kind in local, national and world agriculture. utilize proper animal science terminology. distinguish various breeds of livestock. select and evaluate livestock. apply reproductive principles to breeding practices of livestock. summarize digestive principles to livestock nutrition practices. evaluate proper animal health techniques in the livestock industry. apply biotechnological principles to the livestock industry. relate animal agriculture to the environment. evaluate animal products and by-products of the livestock industry. maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. utilize activities of FFA as an integral component of course content and leadership development. apply science, math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) National Council for Agriculture Education Skill Standards in Bio-Technology 	

Equine Science

Course Description: Equine science develops knowledge and skill pertaining to breed identification and selection, anatomy, physiology, nutrition, genetics and reproductive management, training principles, grooming, health disease, parasite control and sanitation practices. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have an agricultural experience program.

Academic Expectations	Content/Process
<p>1.1,2.36,2.38</p> <p>2.36, 4.5, 6.3</p> <p>1.10,2.6,4.3</p> <p>2.1,2.2,2.3</p> <p>2.1,2.2,2.6</p> <p>1.15,2.3,2.37</p> <p>2.19,2.20,2.3</p> <p>2.1, 2.2, 2.3</p> <p>1.15,2.3,2.37</p> <p>1.15,2.2,2.4</p> <p>1.11,2.13,2.18</p> <p>1.12,2.16,4.0</p> <p>1.9, 1.10, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. • relate the benefits of the equine industry to humankind in local, national, and world agriculture. • contrast equine anatomy, physiology and soundness of different breeds. • relate the anatomy and physiology of the equine digestive system to proper nutritional practices. • utilize health and sanitation practices in the equine industry. • demonstrate proper grooming and handling techniques in the equine industry. • evaluate the role of equine domestication and the various types of equine in the world today. • identify the anatomy and physiology of the equine reproductive system and utilize proper breeding techniques. • utilize proper horsemanship and showmanship practices in the equine industry. • determine the various training principles in the equine industry. • maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. • utilize activities of FFA as an integral component of course content and leadership development. • apply science, math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Council for Agriculture Education Skill Standards in Bio-Technology 	

Animal Technology

Course Description: Animal Technology instruction concentrates on the advanced production practices and current biotechnological applications of one or more species of farm animals, based on the local community needs. Hands-on experiences will be emphasized. Content may be enhanced by utilizing appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.	
Academic Expectations	Content/Process
1.1, 2.36, 2.38	Students will <ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
2.1,2.2,2.3,5.4	<ul style="list-style-type: none"> utilize proper breeding management principles and techniques in the livestock industry.
2.2, 2.9, 1.1	<ul style="list-style-type: none"> utilize proper housing/handling principles and techniques in the livestock industry.
2.1,2.2,2.3,5.3	<ul style="list-style-type: none"> utilize proper feeds/feeding principles and techniques in the livestock industry.
2.7, 2.13, 2.30	<ul style="list-style-type: none"> demonstrate proper sanitation/health management principles and techniques in the livestock industry.
2.7, 2.13, 2.30	<ul style="list-style-type: none"> utilize proper marketing principles and techniques used in the livestock industry.
2.1,2.2,2.3,2.4	<ul style="list-style-type: none"> apply biotechnology to the livestock industry and relate impact of animal agriculture to the environment.
2.1,2.2,2.3,5.4	<ul style="list-style-type: none"> utilize various animal husbandry practices in the livestock industry.
2.1,2.2,4.3,5.4	<ul style="list-style-type: none"> utilize advanced principles and techniques of beef cattle, dairy cattle, swine, sheep, poultry, and specialty animal management.
1.11,2.13,2.18	<ul style="list-style-type: none"> maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12,2.16,2.37	<ul style="list-style-type: none"> utilize activities of FFA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply science, math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) National Council for Agriculture Education Skill Standards in Bio-Technology 	

Advanced Animal Science

Course Description: A freshman-level college course which introduces students to a survey of genetics, reproductive physiology, growth and development, nutrition and digestive physiology, anatomy, meat science and overviews of the dairy, poultry, equine, beef, sheep, swine, and aquaculture industries. Opportunity is provided for students to earn three (3) hours of introductory college credit. Content may be enhanced by utilizing appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have an agricultural experience program.	
Academic Expectations	Content/Process
1.11,2.36,2.38	Students will <ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
1.1, 2.20, 4.5	<ul style="list-style-type: none"> describe the importance of animal agriculture to human needs from a nutritional and global perspective.
1.10, 5.1	<ul style="list-style-type: none"> differentiate between the different classifications of livestock species.
2.2	<ul style="list-style-type: none"> explain the principles of breeding and genetics of livestock species.
1.1	<ul style="list-style-type: none"> discuss the principles of reproduction in species of livestock.
1.1	<ul style="list-style-type: none"> determine the nutritional requirements for livestock species.
2.1	<ul style="list-style-type: none"> assess the principles of health management for livestock.
2.1	<ul style="list-style-type: none"> compare the anatomy, growth, and development of livestock species.
2.7	<ul style="list-style-type: none"> relate products and by-products to livestock production.
2.13	<ul style="list-style-type: none"> analyze segments of the livestock industry.
1.11,2.13,2.18	<ul style="list-style-type: none"> maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12,2.16,2.37	<ul style="list-style-type: none"> utilize activities of FFA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply science, math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) National Council for Agriculture Education Skill Standards in Bio-Technology 	

Plant and Land Science

Course Description: Plant and Land Science develops basic scientific knowledge and skills pertaining to management of the land and its effects on food and fiber production, the environment, and the quality of life. The relationship of land to plant growth will be emphasized. Plant composition, reproduction, growth, and current biotechnological advances will be included. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.	
Academic Expectations	Content/Process
1.1, 2.36, 2.38	Students will <ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
2.19,2.20,2.36	<ul style="list-style-type: none"> assess the benefit of plants and land to human kind in local, national, and world agriculture.
2.2, 2.4, 2.6	<ul style="list-style-type: none"> relate the physical properties of soil to plant and land use.
2.2, 2.4, 2.6	<ul style="list-style-type: none"> relate the chemical properties of soil to plant and land use.
2.2, 2.4, 2.6	<ul style="list-style-type: none"> relate the biological properties of soil to plant and land use.
2.2,2.15,2.20	<ul style="list-style-type: none"> critique the principles of good land use.
4.1,2.2,2.4	<ul style="list-style-type: none"> select appropriate plant nutrition practices and management.
2.1,2.2,2.4,2.6	<ul style="list-style-type: none"> examine the processes for plant development, growth, and reproduction.
2.1,2.2,2.4,2.3	<ul style="list-style-type: none"> relate biotechnology to plant production.
1.11,2.13,2.18	<ul style="list-style-type: none"> maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12,2.16,2.37	<ul style="list-style-type: none"> utilize activities of FFA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply science, math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) National Council for Agriculture Education Skill Standards in Bio-Technology 	

Crop Technology

Course Description: Crop Technology instruction concentrates on the production practices and current biotechnological applications of or more agriculture crops. Hands-on experiences will be emphasized. Instruction will include variety selection, seed bed preparation, fertilization, pest, weed and disease control, harvesting, and marketing crops. Current biotechnological applications may be included. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have an agricultural experience program.	
Academic Expectations	Content/Process
1.1, 2.36, 2.38	Students will <ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
2.19,2.20,2.36	<ul style="list-style-type: none"> specify the benefit of crop production in local, national, and world agriculture.
2.2,2.10,2.19	<ul style="list-style-type: none"> relate the economic factors of crop production in local, national, and world agriculture.
2.2,2.6,2.19	<ul style="list-style-type: none"> evaluate environmental factors of crop production in local, national, and world agriculture.
2.2,2.4,2.3,2.6	<ul style="list-style-type: none"> determine the impact of soil and water resources on crop production.
2.2,2.6,2.9,5.1	<ul style="list-style-type: none"> utilize management practices in row crops.
2.2,2.6,2.9,6.3	<ul style="list-style-type: none"> utilize management practices in small grains.
2.2,2.6,2.9,5.1	<ul style="list-style-type: none"> utilize management practices in forages/pastures.
2.1,2.2,2.3,2.4	<ul style="list-style-type: none"> relate biotechnology to plant production.
1.11,2.13,2.18	<ul style="list-style-type: none"> maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12,2.16,2.37	<ul style="list-style-type: none"> utilize activities of FFA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply science, math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) National Council for Agriculture Education Skill Standards in Bio-Technology 	

Advanced Plant Science

<p>Course Description: A freshman-level course which introduces students to the world of plants. The course is a survey of botany, agronomy, horticulture, soils, forestry, and other areas of plant science. Opportunity is provided for students to earn three (3) hours of introductory college credit. Content may be enhanced by utilizing appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.</p>	
Academic Expectations	Content/Process
1.1, 2.36, 2.38	<p>Students will</p> <ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
2.19,2.20,2.36	<ul style="list-style-type: none"> explain the significance of plant science to fulfill basic human needs.
2.2,2.3,2.4,2.6 2.1,2.2,2.3,2.5	<ul style="list-style-type: none"> differentiate between sexual and asexual plant propagation and reproduction. assess the environmental factors affecting plant growth and development.
2.1,2.2,2.3,2.4	<ul style="list-style-type: none"> determine plant processes such as photosynthesis, respiration, and other processes.
2.2,2.3,2.4,2.5	<ul style="list-style-type: none"> relate genetic processes to plant breeding and crop production.
2.2,2.3,2.4,2.5 2.2,2.3,2.4,2.5	<ul style="list-style-type: none"> examine the plant cell and its related structures. explain seed germination and life cycles.
2.2,2.4,2.6	<ul style="list-style-type: none"> summarize the physical and chemical properties of soil and other plant growing media.
2.2,2.3,2.4,2.5	<ul style="list-style-type: none"> relate harvest and post harvest processes to various plants.
2.2,2.3,2.4,2.5 2.2,2.3,2.4,2.5	<ul style="list-style-type: none"> appraise plant pest control and management. review plant ecosystems and sustainability
1.11,2.13,2.18	<ul style="list-style-type: none"> maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12,2.16,2.37	<ul style="list-style-type: none"> utilize activities of FFA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply science, math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) National Council for Agriculture Education Skill Standards in Bio-Technology 	

Small Power Equipment

Course Description: This course is designed to develop skills in maintenance, repair, and operation of equipment, small combustion-type engine and electric motors. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.	
Academic Expectations	Content/Process
1.1, 2.36, 2.38	Students will <ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
2.2, 2.7, 2.3,	<ul style="list-style-type: none"> identify basic small engine parts and principles of operations and their applications in agriculture
2.37, 2.7, 1.1	<ul style="list-style-type: none"> identify small engine systems: fuel/air, cooling, compression, ignition, lubrication.
1.1, 2.37	<ul style="list-style-type: none"> perform maintenance schedules and procedures for agricultural small engines.
1.1,1.2,1.3,	<ul style="list-style-type: none"> practice safe operation procedures and techniques when repairing or operating small engines.
2.1, 1.1	<ul style="list-style-type: none"> perform small engine trouble shooting skills.
2.10, 2.7	<ul style="list-style-type: none"> determine small engine specifications using precision measuring equipment.
2.7, 2.9, 2.10	<ul style="list-style-type: none"> calculate piston displacement and compression ratio of a small engine.
2.9, 2.3, 2.37	<ul style="list-style-type: none"> identify electric motor parts, principles of operations, and application in agriculture.
1.3,1.1,2.1,2.3	<ul style="list-style-type: none"> service power transmissions.
2.37	<ul style="list-style-type: none"> maintain, adjust and service small power machines utilized in agriculture.
1.11,2.13,2.18	<ul style="list-style-type: none"> maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12,2.16,2.37	<ul style="list-style-type: none"> utilize activities of FFA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply science, math and communication skills within the technical content.
Connections Secretary's Commission on Achieving Necessary Skills (SCANS)	

Agricultural Construction Skills

Course Description: Prepares students to construct and maintain agricultural structures and equipment. Develops basic skills such as: tool identification, interpreting plans, calculating a bill of materials, electrification, carpentry, welding, metal fabrication, plumbing, and masonry. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program. This course may be extended to two credits offered on a two-hour basis provided that instruction is enhanced with laboratory experience, project construction, and in-depth skill development.	
Academic Expectations	Content/Process
1.1, 2.36, 2.38	Students will <ul style="list-style-type: none">demonstrate employability and social skills relative to the career cluster.
2.3, 2.30, 2.37	<ul style="list-style-type: none">demonstrate safe usage of hand woodworking and metal working tools.
2.3, 2.30, 2.37	<ul style="list-style-type: none">demonstrate safe usage of portable and stationary power machines.
2.5,2.1,2.37,2.2	<ul style="list-style-type: none">employ safe usage of electric arc welding techniques and machines.
2.5,2.1,2.37,2.2	<ul style="list-style-type: none">employ safe usage of gas heating, cutting, welding, and brazing techniques and equipment.
2.1, 2.2, 2.37	<ul style="list-style-type: none">use plumbing tools and fixtures.
2.3,2.8,2.9,2.10	<ul style="list-style-type: none">utilize tools, techniques, and formulas for concrete construction.
2.1,2.2,2.3, 2.5	<ul style="list-style-type: none">demonstrate the basic principles of electricity.
2.1,2.3,2.8,2.9	<ul style="list-style-type: none">select proper painting materials and tools.
2.1,2.3,2.8,2.9	<ul style="list-style-type: none">develop project plans including plans and bill of materials for agricultural project construction.
2.19, 2.20	<ul style="list-style-type: none">relate the influence of agricultural mechanics industry on globalized production.
1.11, 2.13, 2.18	<ul style="list-style-type: none">maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12,2.16,2.37	<ul style="list-style-type: none">utilize activities of FFA as an integral component of course content and leadership development.
Connections <ul style="list-style-type: none">Secretary’s Commission on Achieving Necessary Skills (SCANS)	

Agricultural Structures and Designs

Course Description: This course prepares students to evaluate, design and construct agricultural structures. Students learn to design, evaluate and interpret construction plans and calculate a bill of materials. The skills learned in the Agricultural Construction Skills course may be incorporated to construct an agricultural structure. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have an agricultural experience program. It is recommended that students complete the Agricultural Construction Skills course prior to enrolling.

Academic Expectations	Content/Process
<p>1.1, 2.36, 2.38</p> <p>2.1, 1.1, 5.1</p> <p>2.7, 2.9, 2.3</p> <p>1.1, 2.12</p> <p>2.10, 2.7, 2.3</p> <p>2.8, 1.1</p> <p>2.10, 2.3</p> <p>2.19, 2.3</p> <p>1.11,2.13,2.18</p> <p>1.12,2.16,2.37</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. • investigate location and arrangement of agricultural structures and enclosures. • identify tools, techniques, and formulas for concrete and masonry construction. • relate electrical installations to the <i>National Electric Code</i> and local codes. • layout and level sites using surveying equipment. • develop agricultural water and waste systems plans. • construct agricultural structures to conserve soil and water resources. • relate the influence of agricultural mechanics industry to globalized production. • maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. • utilize activities of FFA as an integral component of course content and leadership development.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Agricultural Power and Machinery Operation

Course Description: This course provides instruction and hands-on experience in basic principles of agricultural machinery assembly, operation, maintenance, service, repair and safety. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program. This course may be extended to two credits and offered on a two-hour basis providing the instruction is enhanced with laboratory experience and in-depth skill development.

Academic Expectations	Content/Process
<p>1.1, 2.36, 2.38</p> <p>2.20, 2.19</p> <p>2.3, 2.37, 2.9</p> <p>2.3, 2.37, 2.2</p> <p>2.3, 2.37, 2.10</p> <p>2.3, 2.37, 2.10</p> <p>2.3, 2.37, 2.9</p> <p>1.1, 1.2, 5.5</p> <p>1.1, 1.2, 1.3</p> <p>2.1,5.1,5.4,5.5</p> <p>5.1, 5.4, 6.2,</p> <p>2.8, 2.10, 5.5</p> <p>1.1, 2.6, 2.9</p> <p>1.11,2.13,2.18</p> <p>1.12,2.16,2.37</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. • identify the influence of agricultural mechanics industry on globalized production. • relate basic engine parts to principles of operations. • relate engine systems (carburation, compression, and ignition) to operation. • identify and maintain transmissions and clutches. • identify bearings types and seals. • identify and maintain hydraulic systems. • relate owner's manual and technical journals to specific equipment. • follow maintenance schedules and procedures. • develop troubleshooting skills. • demonstrate safe operation procedures and techniques. • determine power requirements for optimum performance. • develop a plan for preparing equipment for storage. • maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. • utilize activities of FFA as an integral component of course content and leadership development.
<p style="text-align: center;">Connections</p> <p>Secretary's Commission on Achieving Necessary Skills (SCANS)</p>	

Floriculture / Floral Design

Course Description: Floriculture and floral design provides instruction to develop floral design techniques using silk, dried, and fresh flowers. Students will learn operation and management techniques of a florist business as well as identification, production and cultural maintenance practices of plants used in floral design and interior landscaping. Content may be enhanced by utilizing appropriate technology. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Academic Expectations	Content/Process
<p>1.1, 2.36, 2.38</p> <p>2.3, 2.6, 2.8, 2.13</p> <p>2.22, 2.23, 2.9, 5.2</p> <p>2.5, 6.1, 2.9, 2.22</p> <p>2.22, 2.23, 6.1</p> <p>2.3, 2.6, 5.1</p> <p>1.1, 2.3, 2.10, 5.1</p> <p>1.1, 2.3, 5.4, 5.5</p> <p>2.33, 2.30, 2.2</p> <p>2.3, 2.5, 2.6, 2.9</p> <p>1.11, 2.13, 2.18</p> <p>1.12, 2.16, 2.37</p> <p>1.9, 1.0, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. • relate floriculture/floral design practices to environmental impact. • determine principles of design and elements of art in flower arranging. • implement design skills in “real-world” connections. • incorporate special techniques (bows, cards, wiring, tinting, etc.) into floral design. • demonstrate techniques in conditioning and maintaining flowers and floral design materials. • maintain industry-related equipment and materials. • apply safety regulations and practices. • formulate marketing plan. • apply principles of interior landscaping. • maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. • utilize activities of FFA as an integral component of course content and leadership development. • apply science, math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary’s Commission on Achieving Necessary Skills (SCANS) • National Council for Agriculture Education Skill Standards in Bio-Technology 	

Greenhouse Technology

Course Description: Greenhouse Technology provides instruction in greenhouse structures and greenhouse environment regulations. Plant growth and development and propagation are included as well as production and maintenance of bedding and container produced plants. Fundamental principles of vegetable production and commercial production of vegetable crops may be included. Content may be enhanced with appropriate technology. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Academic Expectations	Content/Process
<p>1.1, 2.36, 2.38</p> <p>1.1, 1.16, 2.10</p> <p>2.3,2.6,2.8,5.5</p> <p>2.2,2.3,2.4, 2.10</p> <p>2.3, 2.2, 2.4, 2.6</p> <p>2.3, 2.2, 2.4, 2.6</p> <p>2.1, 2.3,2.7,2.8</p> <p>2.33, 2.30, 2.2</p> <p>2.30, 2.16, 2.37</p> <p>1.1, 2.10, 2.3</p> <p>1.1, 2.3, 5.4, 5.5</p> <p>1.11, 2.13, 2.18</p> <p>1.12, 2.16, 2.37</p> <p>1.9, 1.10, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. • propose greenhouse structural designs and equipment. • manipulate greenhouse environmental conditions. • prepare soils and planting media. • investigate plant processes and development. • select plant propagation methods. • implement bedding and vegetable crop production and management strategies. • formulate marketing plan for greenhouse plants and/or vegetable crops. • demonstrate business and marketing procedures. • maintain, operate and repair facilities and equipment. • apply safety regulations and practices. • maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. • utilize activities of FFA as an integral component of course content and leadership development. • apply science, math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Council for Agriculture Education Skill Standards in Bio-Technology 	

Landscaping and Turf Management

Course Description: This course combines landscaping and turf management curriculum. The material includes identification of landscape plants and their characteristics, site evaluation, site design, calculation of materials needed, costs for bidding, and installing landscape plans. Landscape plant maintenance will also be presented. Selection, culture and management of turf species used for lawns, golf courses, athletic fields and erosion control may also be included. Content may be enhanced by utilizing appropriate technology. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Academic Expectations	Content/Process
<p>1.1, 2.26, 2.38</p> <p>2.22,2.23, 2.10</p> <p>2.3, 2.6, 5.1, 5.4</p> <p>2.7,2.8,2.9,2.10</p> <p>1.16,2.4,2.6,2.9</p> <p>2.7,2.8,2.9, 2.10</p> <p>2.6,2.5,5.1,5.5</p> <p>2.7, 2.8,2.9,2.10</p> <p>5.4,2.1</p> <p>5.1,2.10,1.1,5.4</p> <p>2.10,1.1,5.1,5.4</p> <p>1.11,2.13,2.18</p> <p>1.12,2.16,2.37</p> <p>1.9, 1.10, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. • determine principles of design and elements of art in landscape design. • select appropriate plants for design. • calculate costs of landscape plans for installation. • recommend site preparation and landscape plan installation. • establish and maintain residential and commercial turf grass areas. • formulate landscape and turf grass maintenance schedule. • calculate landscape maintenance costs • maintain golf courses. • maintain, operate and repair facilities and equipment. • apply safety practices and regulations. • maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. • utilize activities of FFA as an integral component of course content and leadership development. • apply science, math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Council for Agriculture Education Skill Standards in Bio-Technology 	

Nursery and Orchard Technology

Course Description: Nursery and orchard technology will provide instruction in production practices for container and field-grown nursery stock; identification, function, growing requirements, hardiness, problems and methods of different landscape plant materials; propagating and growing evergreens/deciduous plants; and the operation of garden centers and nurseries. Principles of home and commercial fruit production may also be included. Content may be enhanced by utilizing appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.	
Academic Expectations	Content/Process
1.1, 2.36, 2.38 2.3,2.2,2.4,2.6 2.1,2.2,2.4,2.6 2.2,2.3,2.4,2.10 2.1,2.3,2.6,2.7 2.3,2.6,2.8,2.13 2.2,2.3,2.4,2.37 2.16, 2.30, 2.33 2.8,2.10,5.1,5.5 1.1, 2.10, 2.3 1.1, 2.3, 2.4 1.11,2.13,2.18 1.12,2.16,2.37 1.9, 1.10, 1.12	Students will <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. • investigate plant processes and plant development. • demonstrate methods of plant propagation. • prepare soils and planting media for nursery and/or orchard crops. • implement production management strategies for nursery and/or orchard crops. • relate nursery technology practices to environmental impact. • demonstrate harvesting and merchandising of nursery crops and/or orchard crops. • formulate marketing plan for nursery and/or orchard crops.. • design and construct growing structures. • maintain, operate, and repair facilities and equipment. • apply safety regulations and practices. • maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. • utilize activities of FFA as an integral component of course content and leadership development. • apply science, math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Council for Agriculture Education Skill Standards in Bio-Technology 	

Agricultural Business / Farm Management

Course Description: This course introduces the free enterprise system, the study of economic principles, risk management, business law, budgets, finance, recordkeeping, and careers in agribusiness. Basic skills will be developed to manage a farm or agribusiness. Material will include: managing production/inventory, equipment, credit and taxes, market analysis and developing a business/farm plan. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.	
Academic Expectations	Content/Process
	Students will
1.1, 2.36, 2.38	• demonstrate employability and social skills relative to the career cluster.
2.18, 2.30,5.1	• relate economic principles to agribusiness/farm management.
1.12, 2.7, 2.8	• evaluate record keeping systems and procedures in agribusiness or farming.
1.1, 2.18,6.1	• investigate sources of capital for agriculture.
2.37, 5.5, 6.1	• relate government policies and business law to agriculture.
1.1, 2.37, 5.1	• identify agribusiness functions critical to success with minimizing risk.
2.11, 5.5, 5.5	• prepare budgets determining financial needs, costs, and loan repayments.
2.7, 2.8, 2.12	• analyze inventories to asset values, net worth, efficiency and production.
2.2, 5.1, 6.2	• explore marketing options available to agricultural products.
2.18, 2.37, 5.1	• plan marketing strategies for agriculture products.
2.37, 5.4, 5.5	• manage human resources in agriculture.
1.1, 1.6, 2.37	• discuss GPS (global positioning systems) and their influence on agriculture.
1.11,2.13,2.18	• maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12,2.16,2.37	• utilize activities of FFA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	• apply science, math and communication skills within the technical content.
Connections	
• Secretary’s Commission on Achieving Necessary Skills (SCANS)	
• National Council for Agriculture Education Skill Standards in Bio-Technology	

Agricultural Employability Skills

Course Description: Agricultural employability skills provides opportunities to develop skills in: job searching, preparing resumes, writing letters of application, job interviews, attitude at work, communicating effectively, human relations and accepting responsibilities. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.	
Academic Expectations	Content/Process
1.1, 2.36, 2.38	Students will <ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
2.37, 2.18, 5.2	<ul style="list-style-type: none"> recommend Entrepreneurship and business training opportunities for agriculture to the community.
2.30, 5.4, 2.37	<ul style="list-style-type: none"> compare agricultural business organizations and regulations.
2.17, 2.37, 5.4	<ul style="list-style-type: none"> practice interpersonal relationships and communications.
2.37, 2.38, 2.17	<ul style="list-style-type: none"> improve individual and group management skills.
2.37, 5.1, 5.4	<ul style="list-style-type: none"> manage records and information systems for agriculture.
2.37, 2.18, 2.30	<ul style="list-style-type: none"> manage capital resources for agriculture.
2.37, 2.16, 6.2	<ul style="list-style-type: none"> investigate employer/employee responsibility.
1.16, 2.37, 5.1	<ul style="list-style-type: none"> apply technology in agricultural employment industry.
1.11, 2.13, 2.18	<ul style="list-style-type: none"> maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12, 2.16, 2.37	<ul style="list-style-type: none"> utilize activities of FFA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply science, math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Agricultural Sales and Marketing

Course Description: This course provides an introduction to agricultural sales and marketing, including. Course material will include: competition in the agriculture market place, marketing decisions, types of markets, contracting, government programs and regulations, personal development, employee and employer responsibilities, communications, promotion strategies, records, files, purchasing materials, stocking, selling and business account procedures. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.	
Academic Expectations	Content/Process
1.1, 2.36, 2.38 2.16, 2.37 1.4, 2.17, 2.37 2.37, 5.5, 6.1 1.16,2.37,5.4 2.2, 5.1, 6.2 5.1, 2.37, 6.1 2.18, 2.37, 5.1 1.16, 2.37 1.11,2.13,2.18 1.12,2.16,2.37 1.9, 1.10, 1.12	Students will <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. • relate interpersonal skills to success in agricultural sales and marketing. • demonstrate effective verbal and written communications skills in agricultural sales and marketing. • dramatize effective salesmanship techniques in agricultural sales and marketing. • advertise and promote agricultural products. • explore marketing options for agricultural products. • utilize agricultural business procedures and record keeping. • formulate a marketing plan for agricultural products. • utilize technology in agricultural sales and marketing. • maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. • utilize activities of FFA as an integral component of course content and leadership development. • apply science, math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Agricultural Bio-Technology

Course Description: Biotechnology in agriculture is designed to emphasize the interrelationship of science and technology and the impact of this technology on agriculture and agricultural products. The curriculum includes: career opportunities in the agricultural biotechnology industry; basic concepts about biotechnology; how genetic information is transferred and changed by engineering; opportunities, impacts and public issues concerning biotechnology; the processes and applications of biotechnology in plant and animal science; and the applications of microbial biotechnology in agriculture. Content will be enhanced with appropriate applied science laboratory activities and computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Academic Expectations	Content/Process
<p>1.1, 2.36, 2.38</p> <p>1.16, 2.7, 2.8</p> <p>2.4, 2.13, 2.2</p> <p>2.1,2.16, 2.18</p> <p>1.10, 5.1, 5.3</p> <p>1.10, 5.1, 5.3</p> <p>1.10, 5.1, 5.3</p> <p>1.11,2.13,2.18</p> <p>1.12,2.16,2.37</p> <p>1.9, 1.10, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. • investigate basic concepts about biotechnology in agriculture. • analyze how genetic information is transferred and changed. • debate opportunities, impacts, and public issues concerning biotechnology. • investigate the processes and applications of biotechnology in plant science. • investigate the processes and applications of biotechnology in animal science. • investigate the applications of microbial biotechnology in agriculture. • maintain records on a supervised agricultural experience programs and be able to summarize and analyze results in making financial decisions. • utilize activities of FFA as an integral component of course content and leadership development. <p>apply science, math and communication skills within the technical content.</p>
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Council for Agriculture Education Skill Standards in Bio-Technology 	

Agricultural Communications

Course Description: This course develops an understanding of fundamental skills necessary to be successful in the agricultural communications industry. Provides guided practice and applied experience utilizing various styles of communication including oral, written, and electronic communications. Techniques of communications will include: traditional print media, brochure development, photography, videography, computer program applications, and Internet usage including e-mail. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Academic Expectations	Content/Process
<p>1.1, 2.36, 2.38 1.12 5.4, 2.16 1.16 2.37 1.11 2.22, 1.16 1.13 1.12 1.16 1.16 1.15, 2.16 1.10, 2.30 2.38 2.38 1.1, 2.30 1.11, 2.37 1.11, 2.13, 2.18 1.12, 2.16, 2.37 1.9, 1.10, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. • develop skills in public, extemporaneous and impromptu speaking. • communicate to resolve conflict and promote team building. • perform computer skills related to word processing, desktop publishing, multimedia presentations and computer graphics. • develop skills related to proper telephone usage. • develop skills to produce print quality newspaper and magazine articles. • develop skills to produce brochures and sale ads. • develop skills for photography and videography used in communications. • utilize skills developed to produce radio and television ads/promotions. • develop skills needed to produce multimedia presentations. • utilize the Internet for research, E-mail, and basic communication processes. • understand how non-verbal communication plays a part in interpersonal development. • conduct meetings by using parliamentary procedure. • learn to develop and complete professional quality resumes. • learn techniques to assist in applying and interviewing for a job. • demonstrate the ability to do market research and organization for presentations. • plan, organize and deliver a sales presentation. • maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. • utilize activities of FFA as an integral component of course content and leadership development. • apply science, math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Aquaculture

Course Description: This course is an introduction to aquacultural science. Instruction provides the fundamentals of aquatic plant and animal biology, anatomy/morphology and physiology in aquaculture, and the unique properties of water for aquaculture. Instruction also includes fish and aquatic crop production principles, management and marketing. Applications of biotechnology in aquaculture, and aquaculture as sustainable agriculture is also included. Content will be enhanced with appropriate applied scientific laboratory activities and computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.	
Academic Expectations	Content/Process
1.1, 2.36, 2.38 2.3, 2.4 2.10, 5.5, 6.3 2.13, 5.1 2.2, 2.18, 5.2 6.1, 2.6 2.20, 2.19 1.11,2.13,2.18 1.12,2.16,2.37 1.9, 1.10, 1.12	Students will <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. • relate the fundamentals of aquatic plant and animal biology to production • analyze the unique chemical properties of water for aquaculture. • demonstrate principles of aquacrop production from species selection to seed production to harvesting to processing. • describe the components of managing the aquafarm and the marketing of aquacrops. • determine applications of biotechnology in aquaculture. • evaluate aquaculture as sustainable agriculture. • maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. • utilize activities of FFA as an integral component of course content and leadership development. • apply science, math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Council for Agriculture Education Skill Standards in Bio-Technology 	

Environmental Technology

Course Description: This course is an intermediate scientific study of environmental technology. It is designed to develop an awareness of environmental concerns related to air, water, soil, land use management, waste management, and their interrelationship with the biological ecosystem. Soil formation, conservation and evaluation material will also be included. Content will be enhanced with appropriate computer applications, scientific laboratory activities, field experimentation, community development projects, and occupational development. Leadership development will be provided through FFA. Each student will be expected to have an agricultural experience program.	
Academic Expectations	Content/Process
1.1, 2.36, 2.38	Students will <ul style="list-style-type: none">demonstrate employability and social skills relative to the career cluster.
2.19, 2.2, 2.5	<ul style="list-style-type: none">distinguish the importance of conserving and managing our natural resources to maintain a high standard of living.
2.19, 2.2, 2.5	<ul style="list-style-type: none">investigate the various types of ecosystems and management skills for a productive life cycle.
2.1, 2.19, 2.20	<ul style="list-style-type: none">relate the physical properties of soil and its effect to the different aspects of the environment.
2.1, 5.4, 6.1	<ul style="list-style-type: none">relate environmental issues to the management of waste products.
2.15,2.14,5.1	<ul style="list-style-type: none">investigate the effects of land use and environmental legislation in multiple use planning.
2.15,2.30,2.18	<ul style="list-style-type: none">relate the proper handling, application and disposal of chemicals to protection of the environmental balance.
2.13, 2.1, 4.4	<ul style="list-style-type: none">analyze the importance of air and water quality on society to ensure and improve sustainable standards.
1.11,2.13,2.18	<ul style="list-style-type: none">maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12,2.16,2.37	<ul style="list-style-type: none">utilize activities of FFA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none">apply science, math and communication skills within the technical content.
Connections <ul style="list-style-type: none">Secretary’s Commission on Achieving Necessary Skills (SCANS)National Council for Agriculture Education Skill Standards in Bio-Technology	

Food Technology

Course Description: Food Technology introduces the issues of world food production and the preparing, processing, and packaging of food. The government regulations regarding foods and the exploration of career opportunities will also be covered. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Academic Expectations	Content/Process
<p>1.1, 2.36, 2.38</p> <p>2.15, 2.16, 2.20</p> <p>2.18, 2.30, 2.31</p> <p>2.1,2.3, 2.4,2.6</p> <p>2.29,2.3,2.10</p> <p>2.3, 2.9,2.8, 2.7</p> <p>2.18, 2.30, 5.1</p> <p>2.30, 5.1, 2.18</p> <p>2.30, 5.1, 2.18</p> <p>2.30, 5.1, 2.18</p> <p>1.11, 2.13, 2.18</p> <p>1.12, 2.16, 2.37</p> <p>1.9, 1.10, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. • determine trends in world and U. S. food production. • relate the food industry to the consumer, including food labeling and economics. • investigate food safety issues from farm to retail, including microbial problems, risk assessment, food handling and HACCP concepts. • compare nutrient components of different food products and their effects on consumer's health. • construct processing, inspection, fabrication, preserving, storing and marketing aspects of the meat industry. • identify the wholesale and retail cuts of the meat animal carcass. • investigate the egg industry from grading to marketing. • investigate production methods and marketing of dairy products. • compare processing and marketing of small grains products, fruits, and vegetables. • maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. • utilize activities of FFA as an integral component of course content and leadership development. • apply science, math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Council for Agriculture Education Skill Standards in Bio-Technology 	

Forestry

Course Description: This course introduces the science of silviculture. The course includes career opportunities, tree identification, tree production, forestry management, timber harvesting, wood utilization and the environmental and ecological aspects of forestry. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Academic Expectations	Content/Process
<p>1.1, 2.36, 2.38</p> <p>1.1, 2.31, 2.3</p> <p>1.1, 1.16, 1.3 1.9</p> <p>1.1, 1.2, 1.10, 2.1</p> <p>1.1, 1.2, 1.3, 2.1</p> <p>1.1, 1.2, 1.3, 2.1</p> <p>1.1, 1.2, 1.3, 1.16</p> <p>1.1, 1.2, 1.3, 1.10</p> <p>1.1, 1.2, 1.3, 2.1</p> <p>1.11, 2.13, 2.18</p> <p>1.12, 2.16, 2.37</p> <p>1.9, 1.10, 1.12</p>	<p>Students Will</p> <ul style="list-style-type: none"> • demonstrate employability and social skills relative to the career cluster. • utilize forestry tools and equipment. • survey land and cruise timber . • investigate physical characteristics of trees, plant processes, growth and taxonomy. • recommend management practices including: genetic potential, reforestation, timber stand improvement, and harvesting. • investigate environmental, social , and economic value of forest. • investigate the influence/importance of forestry from local to global level.. • distinguish wood characteristics including wood properties, products, wood identification and physiology. • evaluate methods for forest protection from insect, disease and other destructive agents. • maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. • utilize activities of FFA as an integral component of course content and leadership development. • apply science, math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Council for Agriculture Education Skill Standards in Bio-Technology 	

Small and Specialty Animal Technology

<p>Course Description: This course develops scientific knowledge, management practices, and marketing strategies in small and specialty animal technology. The curriculum includes identification, anatomy, physiology, nutrition, health, selection and care of small animals such as dogs, cats, rabbits, companion birds, ostriches, emus, tropical fish, and fur bearers. Content will be enhanced with appropriate applied scientific laboratory activities and computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.</p>	
Academic Expectations	Content/Process
1.1, 2.36, 2.38	<p>Students will</p> <ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
1.6, 2.9, 2.17	<ul style="list-style-type: none"> relate small animal technology to current world trends.
2.3, 2.6, 2.20	<ul style="list-style-type: none"> describe the distinguishing characteristics of the different breeds of small and specialty animal species.
2.1, 2.3	<ul style="list-style-type: none"> describe and compare the physiology and anatomy of small animal species.
2.2, 2.5, 2.6	<ul style="list-style-type: none"> describe and compare the process of reproduction of small animal species.
2.1, 2.2, 2.3, 5.3	<ul style="list-style-type: none"> analyze the nutritional requirements of small and specialty animal species.
2.33, 2.8, 2.10	<ul style="list-style-type: none"> describe the care, handling, sheltering, and grooming of small animals.
2.4, 2.6	<ul style="list-style-type: none"> investigate diseases and plan a health maintenance schedule in small animals.
2.2, 2.18, 5.2	<ul style="list-style-type: none"> evaluate the management and marketing of small animal services and products.
1.11, 2.13, 2.18	<ul style="list-style-type: none"> maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12, 2.16, 2.37	<ul style="list-style-type: none"> utilize activities of FFA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply science, math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) National Council for Agriculture Education Skill Standards in Bio-Technology 	

Wildlife Resources

Course Description: Develops an awareness of wildlife industry resources. The course includes: a study of ecology and ecosystems, wildlife habitat, population dynamics ,management technics that deal with wildlife in all areas and the regulations that effect the wildlife industry. Content may be enhanced with appropriate applied scientific laboratory activities and computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.	
Academic Expectations	Content/Process
	Students Will
1.1,2.36,2.38	• demonstrate employability and social skills relative to the career cluster.
2.2,2.3,2.4,2.5	• analyze the dynamics of an ecosystem.
2.2,2.3,2.4,2.5	• examine the diverse components of habitat and it’s relation to wildlife.
2.1,2.9, 2.11	• calculate the population dynamics that relate to wildlife.
2.14,2.18,2.20	• identify the human role in wildlife and habitat management as it applies to historic, social, political, and economic concerns.
2.2, 2.3, 2.5	• examine the human impact on wildlife resources.
2.14,1.10,1.11	• examine the Federal and State Laws and Regulation that pertain the conservation and preservation of wildlife.
1.11,2.13,2.18	• maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12,2.16,2.37	• utilize activities of FFA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	• apply science, math and communication skills within the technical content.
Connections	
• Secretary’s Commission on Achieving Necessary Skills (SCANS)	
• National Council for Agriculture Education Skill Standards in Bio-Technology	

Advanced Wildlife Management

Course Description: A freshman-level college course which provides students with an overview of wildlife ecology and management. Emphasis is placed on the multifaceted nature of wildlife ecology, the importance of wildlife in our culture, and the relationships among wildlife and other natural resources. Opportunity will be provided for students to earn three (3) hours of introductory college credit. Content may be enhanced by appropriate computer applications. Leadership development will be provided through FFA. Student agricultural experience programs will enhance program benefits.	
Academic Expectations	Content/Process
1.1, 2.36, 2.38	Students will <ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
2.2, 2.6	<ul style="list-style-type: none"> define wildlife and the wildlife management process.
2.20	<ul style="list-style-type: none"> recount the history and legislation as it relates to wildlife and endangered species.
2.5, 2.6	<ul style="list-style-type: none"> interpret the basic ecological principles and their related habitat requirements for different wildlife species.
2.1, 2.3	<ul style="list-style-type: none"> review the agricultural, forest, and range land management practices.
2.1, 2.2	<ul style="list-style-type: none"> explain wetlands, wetland ecology, and management and waterfowl management.
2.3, 2.6	<ul style="list-style-type: none"> examine the attributes of population, population interaction, and abundance.
2.2, 2.4	<ul style="list-style-type: none"> formulate management practices for backyard wildlife damage, wildlife harvest, and biodiversity.
1.11,2.13,2.18	<ul style="list-style-type: none"> maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
1.12,2.16,2.37	<ul style="list-style-type: none"> utilize activities of FFA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply science, math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) National Council for Agriculture Education Skill Standards in Bio-Technology 	

BUSINESS EDUCATION

Course Title	Recommended Grade Level										Recommended Credit
	4	5	6	7	8	9	10	11	12		
Business Economics**						X	X	X	X	½ - 1	
Touch Keyboarding for 4-6 th Grade	X	X	X							N/A	
Business and Marketing Career Exploration				X	X	X				1	
Exploratory Computers				X						1	
Keyboarding Applications					X	X				1	
Computer Applications						X	X	X	X	1	
Advanced Computer Applications							X	X	X	1-3	
Advanced Finance and Credit*								X	X	1-3	
Mathematics for Business and Industry						X	X	X		1	
Business Principles and Applications						X	X			1	
Accounting I						X	X	X		1	
Accounting II*							X	X	X	1-3	
Financial Services I*							X	X	X	1-3	
Financial Services II*								X	X	1-3	
Business Law*							X	X	X	1-3	
Business Management*								X	X	1-3	
Business Technology						X	X	X	X	1	
Entrepreneurship*								X	X	1-3	
Word Processing						X	X	X	X	1	
Business Communication*								X	X	1-3	
Electronic Office*								X	X	1-3	
Multi-Media Publishing*							X	X	X	1-3	
International Business*								X	X	1-3	
Medical Office*								X	X	1-3	
Legal Office*								X	X	1-3	

*Credit may be awarded for junior/senior level courses for both the related class (1 credit) and the work-site experiences. The credit for work-site experiences is based on the number of class hours spent at the work site for a maximum of two (2) credits per related class.

**Business Economics is an interdisciplinary course which meets the graduation requirement for Economics.

BUSINESS EDUCATION

Overview of Business Education

As developed by the Kentucky Business Education Task Force, the vision of Kentucky Business Education is to promote business professional development, enhance leadership, provide relevant curriculum, and to be vital to the education of all students. Kentucky Business Education will:

- operate as the center for industry standard desktop and communications technology in schools,
- provide a critical link in school to employment transition,
- develop stronger relationships with the business community in terms of mutual advocacy, cooperative field experiences, employment placement, and support for FBLA experiences,
- represent a necessary component in the education of all students,
- provide a vehicle for the school-to-work transition of students,
- require and promote critical thinking and problem solving,
- offer a flexible curriculum based on standards and that adapts to change, and
- have a broad network of business partnerships.

The Kentucky Chapter of Professional Secretaries International (PSI) and the Business and Marketing Education Branch have developed the skill standards required to obtain an Administrative Support Certificate. Students may obtain this skill standards certificate by taking four specific business education courses and meeting other criteria which are still being developed. These standards reflect what employers are looking for when they seek to hire employees and are essential for students to be able to do upon graduation.

Business Economics is an interdisciplinary course which meets the graduation requirement for Economics.

School-based enterprises (banks, publishing companies, etc.) operated by students under the direction of a Business Education Teacher are encouraged and strengthen the student's educational experience.

Computer Applications and Word Processing are courses having statewide articulation agreements. These agreements provide students with an opportunity to proceed from secondary to post-secondary, technical, and higher education in these computer-related areas in a non-duplicative manner.

Several courses in the Business Education Program Area are cross-referenced with the Marketing Program Area. Cross-referenced courses are available in both program areas and may be taught by teachers certified in either Business or Marketing Education.

Future Business Leaders of America (FBLA) is the organization for Business Education students. The co-curricular activities of FBLA must be an integral part of approved business education programs with all students encouraged to become involved in these activities. These experiences enhance leadership development, promote citizenship, and facilitate the transition from school to careers.

BUSINESS AND MARKETING CAREER CLUSTER

BUSINESS CAREER MAJORS

Business Management	Accounting Services	Administrative Support Services	Legal Office Services
Business and Marketing Career Exploration (7 th – 8 th Grades)			
Exploratory Computers (7 th Grade)		Keyboarding Applications (8 th Grade)	
Grades 10-12			
Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses
Keyboarding Applications ***Computer Applications Accounting I *Business Law OR Business Economics */*Business Management	***Keyboarding Applications ***Computer Applications Accounting I */****Accounting II	***Keyboarding Applications Accounting I ***Word Processing */****Electronic Office	***Keyboarding Applications ***Computer Applications ***Word Processing *Business Law */****Legal Office *Electronic Office
Elective Courses	Elective Courses	Elective Courses	Elective Courses
*Accounting II **Agricultural Business Farm Management *Business Communication *Entrepreneurship *International Business **Principles of Marketing **Other Courses	Business Principles and Applications *Advanced Computer Applications *Business Management *Business Law **Other Courses	Business Principles and Applications ***Computer Applications *Advanced Computer Applications *Business Communication Business Economics *Business Management **Other Courses	Business Principles and Applications *Advanced Computer Applications *Business Communication **Other Courses
<p>*Credit may be awarded for these junior-senior-level courses for <u>both</u> the related class (1 credit) and the work-site experiences. The credit for work-site experiences is based on the number of class hours spent at the work site for a maximum of two (2) credits per related class.</p> <p>**Other Courses can be taken that are directly related to career major.</p> <p>***Statewide articulation agreements exist for these courses. These agreements provide students with an opportunity to proceed in the identified computer-related areas in a non-duplicative manner from the secondary level to post-secondary, technical, and higher education.</p>			
<p>NOTE: To complete a career major, students must earn four career-related credits within the major <u>and</u> complete the current required credits for graduation. Three credits must come from recommended courses <u>and</u> include an upper-level course (courses indicated with four asterisks).</p>			
<p>NOTE: Business Economics is an interdisciplinary course which meets the graduation requirement for Economics.</p>			

BUSINESS AND MARKETING CAREER CLUSTER

BUSINESS CAREER MAJORS (continued)

Medical Office Services	Information Processing Services	Financial Services	General Office/Clerical Services
Business and Marketing Career Exploration (7th – 8th Grades) Exploratory Computers (7th Grade)			
Keyboarding Applications (8th Grade) Grades 10-12			
Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses
Keyboarding Applications ***Computer Applications ***Word Processing */Medical Office	***Keyboarding Applications ***Computer Applications ***Word Processing */***Electronic Office	***Keyboarding Applications ***Computer Applications Accounting I */***Financial Services I *Financial Services II	In this career major any four (4) courses in the Business Education Curriculum may be taken to achieve this career major. There is no upper-level course.
Elective Courses	Elective Courses	Elective Courses	Elective Courses
Accounting I *Advanced Computer Applications *Business Communication Business Principles and Applications **Medical Terminology **Other Courses	*Advanced Computer Applications *Business Communication *Multi-Media Publishing **Other Courses	*Accounting II *Advanced Finance and Credit *Business Communication *Business Law *Entrepreneurship **Principles of Marketing **Other Courses	***Keyboarding Applications Accounting I Business Technology ***Computer Applications
*Credit may be awarded for these junior/senior-level courses for <u>both</u> the related class (1 credit) and the work-site experiences. The credit for work-site experiences is based on the number of class hours spent at the work site for a maximum of two (2) credits per related class. **Other Courses can be taken that are directly related to career major. ***Statewide articulation agreements exist for these courses. These agreements provide students with an opportunity to proceed in the identified computer-related areas in a non-duplicative manner from the secondary level to post-secondary technical and higher education.			
NOTE: To complete a career major, students must earn four career-related credits within the major <u>and</u> complete the current required credits for graduation. Three credits must come from recommended courses <u>and</u> include an upper-level course (courses indicated with four asterisks).			
NOTE: Business Economics is an interdisciplinary course which meets the graduation requirement for Economics.			

MODEL COURSE SEQUENCE

BUSINESS MARKETING CAREER CLUSTER			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Keyboarding Applications	Computer Applications	Business Technology	Financial Services I

BUSINESS AND MARKETING CAREER CLUSTER			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Computer Applications	Business Technology	Financial Services I	Multi-Media Publishing

MODEL COURSE SEQUENCE

ADMINISTRATIVE SUPPORT CAREER MAJOR			
ACADEMIC CORE			
9TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Keyboarding Applications	Accounting I	Word Processing	Electronic Office

ADMINISTRATIVE SUPPORT CAREER MAJOR			
ACADEMIC CORE			
9TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Computer Applications	Word Processing	Accounting I	Electronic Office

Business Economics

Course Overview:

This course is a ½-credit course designed to be a comprehensive study of economics which meets the economics requirement for graduation. It provides an in-depth study of how people produce, distribute, and consume goods and services. Economic terminology, theory, and a comparison of economic systems and policies are integral to the course. Simulations and/or actual work situations may be used to provide practical experience with various economic conditions.

Guiding/Essential Questions:

- **What role does the government play in a nation's economy?**
 - Discuss how economic policies are determined by elected officials.
 - Demonstrate an understanding of the cause/effect of business cycles and how monetary and fiscal policy can be used to regulate these problems.
 - Compare the characteristics and benefits of a market economy, command economy, mixed economy and traditional economy and how each economic system answers the basic economic problem of scarce resources.
 - Examine the relationship between the government and the economy.
- **What role do I play in the economy?**
 - Utilize decision-making models to make economic choices and determine the opportunity cost of those choices.
 - Utilize activities of FBLA and/or DECA as an integral component of course content and leadership development.
 - Apply economic concepts through simulations.
- **How does the economy meet the needs of its citizens?**
 - Discuss how the economy of the United States attempts to meet the needs of its citizens.
 - Understand why people from other nations have come to the United States because of economic opportunities.
 - Demonstrate employability and social skills relative to the career cluster.
- **How do culture and different belief systems affect the decisions that consumers make?**
 - Analyze economic concepts and understand their relevance to different economic situations.
 - Analyze the impact of international issues and concerns on personal, national, and international economics.
 - Analyze the role culture plays in economic issues of production, distribution, and consumption of goods and services.
 - Apply economic concepts through simulations.
- **Why is it important to study and understand economics?**
 - Analyze economic concepts and understand their relevance to different economic situations.

- Create graphs that illustrate shortages and surplus and describe how the market works to eliminate these conditions; identify the effects each change has on equilibrium price and quantity.
 - Analyze current economic conditions by using economic indicators.
 - Apply economic concepts through simulations.
- **What importance does geography have in a national and/or global economy?**
 - Understand that scarcity is the basic economic problem facing individuals, societies, and nations.
 - Analyze how a nation's wealth and trade potential are tied to its resources.
 - Explore how international trade and multinational companies have led to a global economy.
 - Apply economic concepts through simulations.
- **Why has the economy of the United States changed over time, and have the changes improved the economic condition of its citizens?**
 - Understand how the United States' economy has changed from a rural to an industrial economy to a leader in the global economy.
 - Appraise the effects of technological changes, changes in consumer preferences, price inputs, environment, and legislation on supply and demand and price of goods/services.
 - Create demand curve graphs for two firms (one monopoly and one oligopoly) and explain the levels of output for a firm in perfect conditions.
 - Apply math and communication skills within the technical content.
 - Apply economic concepts through simulations.

Contributions by:

Bill Bitner, Glasgow High School

Dee Colvin, Henry County High School

Jerona White, Henry County High School

Business Economics

Academic Expectations	Guiding Questions	Correlation to the Program of Studies And Vocational Content Charts
<p>Government and Civics (2.14, 2.15)</p>	<p>What role does the government play in a nation's economy?</p>	<p>Students will</p> <ul style="list-style-type: none"> • discuss how economic policies are determined by elected officials. • demonstrate an understanding of the cause/effect of business cycles and how monetary and fiscal policy can be used to regulate these problems. • examine the relationship between the government and the economy. • apply economic concepts through simulations. • analyze decision on distribution of resources. • discuss taxes and how they affect the economy.

Business Economics

Academic Expectations	Guiding Questions	Correlation to the Program of Studies And Vocational Content Charts
Government and Civics (2.14, 2.15)	What role do I play in the economy?	Students will <ul style="list-style-type: none">• utilize decision-making models to make economic choices and determine the opportunity cost of those choices.• utilize activities of FBLA and/or DECA as an integral component of course content and leadership development.

Business Economics

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • write a report for American Enterprise Project to promote as awareness of a facet of the American Enterprise System. • promote committee involvement with FBLA and/or DECA. Design a reporting chart for the committees to know who and when they should report their progress. Write an article to the local newspaper about the function of the committee and plans for an event. • discuss responsible membership in FBLA and/or DECA and prepare a plan for involving members in the activities of the organization. Submit plan to officer team for implementation. • develop questions and interview a government official about the economic development plans for the community. Prepare a report for the FBLA/DECA meeting that will explain how the student organization can support the county plan. Present report to local leaders. • trace a product from beginning to purchase. Create a flow chart to reflect the process. Explain the role of the citizen along the way. <p>Technology suggestion: Create a powerpoint presentation showing the process.</p> <ul style="list-style-type: none"> • select a stock on the stock market and track its progress in the market for a period of time. Trace the political issues which affect the markets both in the United States and around the world. Write a recommendation (persuasive piece) to a potential investor reflecting your choices for best stocks and best time to buy. <p>Technology suggestion: Use the internet to track stocks.</p> <ul style="list-style-type: none"> • define the economic policy of the current administration and evaluate its impact on the economy and consumers. • write a letter to your current President, Senator or Representative encouraging the change or continuation of those policies. (WP-Transactive) 	

Business Economics

Academic Expectations	Guiding Questions	Correlation to the Program of Studies And Vocational Content Charts
Culture and Society (2.16, 2.17)	How does the economy meet the needs of its citizens?	Students will <ul style="list-style-type: none">• discuss how the economy of the United States attempts to meet the needs of its citizens.• understand why people from other nations have come to the United States because of economic opportunities.• demonstrate employability and social skills relative to the career cluster.

Business Economics

Academic Expectations	Guiding Questions	Correlation to the Program of Studies
Culture and Society (2.16, 2.17)	How do culture and different belief systems affect decisions that consumers make?	Students will <ul style="list-style-type: none">• explain the difference between macroeconomics and microeconomics choices.• analyze the impact of international issues and concerns on personal, national, and international economics.• analyze the role culture plays in economic issues of production, distribution, and consumption of goods and services.

Business Economics

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> investigate ethics in advertising; why people do or do not buy products. Create an advertisement for different cultures and/or languages. discuss committee use within FBLA/DECA and how the work performed by the committee affects the success of the organization. Write a news release explaining a solution to a problem in the community corrected with a community service/free enterprise project. discuss office politics—role of employees and employers and the effect that politics has on production. Design a game about the jobs or the communication within a working situation. develop community service project which involves research and discuss cultural differences pertaining to entrepreneurship/free enterprise in business operation. Create a report with graphics as a plan of action. discuss and role play employee/employer relationships and their importance to economic development in the community. Survey businesses in the community about the needs within the area. Role play within groups an important principle of employee/employer relationships and behavior. The audience (peers) will identify the principle at the end of the role play. research unemployment rates over time. Compare unemployment rates to consumer spending. Graph the results. research consumer spending of teenagers and adults. Analyze the types of products on which they spend the most, looking for similarities and differences. Create a chart showing the results of the survey. 	

Business Economics

Academic Expectations	Guiding Questions	Correlation to Program of Studies and Vocational Content Charts
Economics (2.18, 2.19)	Why is it important to study and understand economics?	Students will <ul style="list-style-type: none">• analyze economic concepts and understand their relevance to different economic situations.• create graphs that illustrate shortages and surplus and describe how the market works to eliminate these conditions; identify the effects each change has on equilibrium price and quantity.• apply economic concepts through simulations.

Business Economics

Academic Expectations	Guiding Questions	Correlation to Program of Studies and Vocational Content Charts
Economics (2.18, 2.19)	What importance does geography have in a national and/or global economy?	Students will <ul style="list-style-type: none">• understand that scarcity is the basic economic problem facing individuals, societies, and nations.• explore how international trade and multinational companies have led to a global economy.• analyze how a nation's wealth and trade potential are tied to its resources.

Business Economics

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> research major crops on products produced in various states and counties. Explain how geographic concerns have determined what will be their major crops or products. Also, trace how geographic features play a role in exports and imports. <p><i>Technological suggestion: Use the internet to research information.</i></p> <ul style="list-style-type: none"> explain why tobacco is common in Lexington and coal is common in eastern Kentucky. design a plan for an FBLA/DECA-sponsored school store. Write a proposal to the school administrator to present the operation of such a store. conduct research (target market survey) as to what items the school community would purchase if available and the cost effectiveness considering the size of the student population and competition in the area. develop an inventory tracking system for the items provided in the school store allowing for reorder amounts, price, and distribution. apply economic concepts to the roles people play in the economy (<i>i.e., consumers, entrepreneurs, investors, producers</i>). Write a play in which all are visible and present to an elementary or middle school class. examine the effectiveness of three different economic systems—command, market, and traditional. Compare and present in graph or chart form the advantages and disadvantages of each system. budget for everyday expenses (<i>e.g., rent, groceries, car, etc.</i>) and discuss the realities of wants and needs. research the positives and negatives of consumer credit. Discuss the responsible ways to use credit. Role-play consumers and consumer credit counselors in order to discuss relevant issues. research the role of banks in our economy. Evaluate how to best use the resources and services banks provide (<i>e.g., loans, credit cards, checking accounts, savings accounts IRAs, mutual funds, etc.</i>). Create a chart listing the results. 	

Business Economics

Academic Expectations	Guiding Questions	Correlation to Program of Studies and Vocational Content Charts
Historical Perspective (2.20)	<p>Why has the economy of the United States changed over time and have the changes improved the economic condition of its citizens?</p>	<p>Students will</p> <ul style="list-style-type: none"> • understand how the United States economy has changed from a rural to an industrial economy to a leader in the global economy. • appraise the effects of technological changes, changes in consumer preferences, price inputs, environment, and legislation on supply and demand, and price of goods and services. • create demand curve graphs for two firms (one monopoly and one oligopoly) and explain the levels of output for a firm in perfect condition. • apply economic concepts through simulations. • apply math and communication skills within the technical content.

Business Economics

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • identify the most important economic issues for the United States because of its participation in the global economy. Create a bulletin board that displays this information. • research trends in business after political or administrative change (<i>e.g., new president/CEO, different party in control of Congress; fall of communism in former Soviet Union; national election; mayor; sheriff; principal; school board, etc.</i>). • research the interconnectedness of the world economies. Explain the impact dips in world economies have on the U.S. economy. Create a web page showing the connections and why they are important to our economy. • explain how people invest in the stock market. • trace the impact political issues have had on the stock market. Explain how the stock market is able to now recover from a 500 point drop and was not able to recover in the 1920s. Present orally to class. • interview registered voters. Determine how important economic issues are in deciding which candidate they will select. Make sure business owners are included. Create a spreadsheet showing the market research numbers and results. 	

Accounting I

Course Description: The accounting principles taught in this course are based on a double-entry system and include preparing worksheets, journals, ledgers, payroll taxes, and financial statements for a sole proprietorship, partnership, and corporation. Opportunities for exposure to automated accounting are provided. Leadership development will be provided through FBLA.	
Academic Expectations	Content/Process
	Students will
1.9, 2.7, 2.8	<ul style="list-style-type: none">• use electronic calculators in working accounting problems.
1.3, 5.1, 6.2	<ul style="list-style-type: none">• identify basic accounting terminology, concepts, and ethics.
1.3, 2.37, 5.1	<ul style="list-style-type: none">• analyze business transactions and financial statements.
1.9, 2.8, 5.1	<ul style="list-style-type: none">• demonstrate the ability to post to journals, to prepare worksheets and financial statements, and to post adjusting and closing entries.
1.9, 2.7, 2.8	<ul style="list-style-type: none">• identify banking procedures and apply correct accounting methods for all financial records.
1.1, 2.37, 6.2	<ul style="list-style-type: none">• explain terms and concepts of automated accounting.
2.36, 2.38, 6.3	<ul style="list-style-type: none">• compare the various careers in accounting; construct a career portfolio, including a resume, a letter of reference, and samples of work.
1.12, 4.0, 6.2	<ul style="list-style-type: none">• utilize activities of FBLA as an integral component of course content and leadership development.
2.36, 2.37	<ul style="list-style-type: none">• demonstrate employability and social skills relative to the career cluster.
1.9, 1.10, 1.12	<ul style="list-style-type: none">• apply math and communication skills within the technical content.
Connections	
<ul style="list-style-type: none">• Secretary's Commission on Achieving Necessary Skills (SCANS)• National Standards: Administrative Support Occupations/Skill Standards, V-TECS	

Accounting II

Course Description: The accounting principles taught in this course include an in-depth study of accounting principles, procedures, and techniques used in keeping financial records for sole proprietorships, partnerships, and corporations. There is an emphasis on automated accounting. Leadership development will be provided through FBLA.

SUGGESTED PREREQUISITE: Accounting I

Academic Expectations	Content/Process
<p>1.16, 2.13, 6.1</p> <p>2.7, 2.8, 5.1</p> <p>1.16, 2.7, 2.8</p> <p>2.7, 2.8, 2.13</p> <p>2.7, 2.8, 5.4</p> <p>1.16</p> <p>2.37, 6.1, 6.2</p> <p>2.36, 2.38, 6.3</p> <p>1.16, 2.3, 5.3</p> <p>1.12, 4.0, 6.2</p> <p>2.36, 2.37</p> <p>1.9, 1.10, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> • identify accounting terms and concepts related to computer operations, partnerships, corporations, departmental accounting, uncollectible accounts, plant assets, notes, advanced automated accounting, and managerial accounting. • demonstrate the ability to journalize transactions and prepare financial statements for partnerships, corporations, and departmental transactions. • illustrate journal entries for uncollectible accounts, plant assets, and notes payable and receivable. • analyze advanced business transactions and financial statements. • explain and demonstrate different inventory methods, budgeting systems, and the use of vouchers and coding. • demonstrate the ability to use spreadsheets (simple and advanced). • participate in a work-based learning experience (shadowing, mentoring, and/or co-op, etc.). • research and analyze career opportunities in accounting and develop an employment portfolio (letter of application, resume, etc.) and examine the importance of work ethics. • apply various accounting principles using different software packages and/or accounting simulations. • utilize activities of FBLA as an integral component of course content and leadership development. • demonstrate employability and social skills relative to the career cluster. • apply math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Advanced Computer Applications

Course Description: This course is designed to provide students with an advanced-level experience with practical applications through hands-on instruction. Course content will include understanding of various hardware, software, operating systems, and care/operations. The software includes advanced applications using word processing, graphing, spreadsheets, database management, desktop publishing, and electronic communications. Leadership development will be provided through FBLA.

SUGGESTED PREREQUISITE: Computer Applications

Academic Expectations	Content/Process
<p>2.37, 5.3, 5.4</p> <p>1.16, 2.37, 5.3</p> <p>1.16, 2.9, 5.2</p> <p>1.15, 1.16, 2.22</p> <p>1.16, 5.2, 5.4</p> <p>2.36, 6.2, 6.3</p> <p>1.16, 2.37, 5.4</p> <p>1.2, 1.3, 5.4</p> <p>1.9, 1.10, 1.12</p> <p>2.36, 2.37</p> <p>1.12, 4.0, 6.2</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate at an advanced level creating, editing, saving, revising, and printing word processing documents, spreadsheets and related graphs, database files, and related reports. • show the integration of word processing, spreadsheet, and/or database files including graphs and graphics. • demonstrate at an advanced level creating, editing, saving, and printing desktop publishing documents, which include text and graphics using principles of layout and design. • illustrate at an advanced level electronic presentations using a variety of concepts available in presentation software. • design a personal and business web page. • research and analyze career opportunities in information processing and develop an employment portfolio (letter of application, resume, etc.). • develop Future Business Leaders of America projects using a variety of software applications. • analyze various hardware and software used by business and industry; examine operating systems. • apply math and communication skills within the technical content. • demonstrate employability and social skills relative to the career cluster. • utilize activities of FBLA as an integral component of course content and leadership development.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Advanced Finance and Credit

Course Description: This course is designed to develop an understanding of financial markets, investing institutions, and the finance and credit industry in our economic system. It includes an introduction to the allocation of financial resources, the effects of the finance and credit institutions on the business community, and the impact that financial decisions have on the consumer market. Areas of study include stock markets, bonds, futures, commodities, interest rates and the economy, interpretation of financial information, insurance and risk management, and job opportunities in the finance and credit area. This course should include real and/or simulated occupational experiences and projects. Leadership development will be provided through FBLA and/or DECA. *(This course is cross referenced with Marketing Education.)*

SUGGESTED PREREQUISITE: Business Principles and Applications OR Business Economics OR Financial Services I.

Academic Expectations	Content/Process
<p>2.14, 2.17 1.4, 2.15</p> <p>1.11, 5.4 1.12, 2.8, 2.18</p> <p>2.14, 2.30 6.2</p> <p>1.3, 5.3, 5.4 5.5</p> <p>1.13, 5.2 1.2, 2.7, 2.8</p> <p>2.36, 6.1 2.37, 2.38 2.14, 2.18</p> <p>2.7, 5.3</p> <p>1.1, 2.7, 6.3</p> <p>1.1, 6.2 2.7, 5.3, 5.4 5.1</p>	<p>Students will</p> <ul style="list-style-type: none"> • recognize characteristics of good customer service. • develop an understanding of credit transactions including the laws that govern these functions. • apply math and communication skills within the technical content. • explain buying and selling stock, identify the various stock exchanges and indices, and discuss/interpret the conditions that affect stock market fluctuations. • develop an understanding of the profit objective of a financial institution. • investigate and discuss the federal and state deposit insurance guidelines and practices. • distinguish among various types of risk (economic, natural, human, pure, speculative, etc.) and evaluate the handling of business risk. • develop appropriate advertising campaign for financial institution; prepare marketing procedures for paper products and services. • differentiate between terminology for credit and savings transactions. • apply math, communication, and accounting skills in preparing and analyzing financial statements. • research career opportunities in the finance and credit industry. • demonstrate employability and social skills relative to the career cluster. • explain and analyze the sources of revenue for federal, state, and local governments. • identify sources and functions of consumer credit and explain the relationship of consumers with the economy. • analyze various aspects of foreign trade and finance, including foreign exchange and balance of trade. • differentiate between recession and depression. • examine financial management as it relates to government and business. • utilize activities of FBLA and/or DECA as an integral component of course content and leadership development.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • National Retail Skill Standards • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Business Communication

Course Description: Business Communication is the study of written, oral, and electronic communication in a business environment. Emphasis is on writing letters, preparing and orally presenting business reports, using the telephone in business, electronic transfer of information, using business information resources, listening and interpreting, and developing business messages. Leadership development will be provided through FBLA.

SUGGESTED PREREQUISITE: Keyboarding applications or its equivalent.

Academic Expectations	Content/Process
1.1, 5.4, 6.3	Students will
	<ul style="list-style-type: none"> identify the parts of speech, apply language arts rules, and use reference materials.
1.16, 6.3	<ul style="list-style-type: none"> utilize grammar check, spell check, thesaurus, and proofreader's marks.
1.11, 1.16, 5.4	<ul style="list-style-type: none"> compose various types of business documents electronically, including those associated with employment.
1.16, 6.2, 6.3	<ul style="list-style-type: none"> identify, describe, and use different types of electronic communications.
6.3	<ul style="list-style-type: none"> demonstrate proper telephone etiquette.
1.16, 2.36, 2.38	<ul style="list-style-type: none"> demonstrate job interviewing techniques and develop a career portfolio (resume, letter of application, etc.).
2.36, 2.37, 6.3	<ul style="list-style-type: none"> research career opportunities in business communication-related careers.
1.11, 1.16, 5.4	<ul style="list-style-type: none"> compose and illustrate an oral report using appropriate visual aids (presentation software, etc.).
1.12, 4.0, 6.2	<ul style="list-style-type: none"> utilize activities of FBLA as an integral component of course content and leadership development.
2.36, 2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply math and communication skills within the technical content.
Connections	
<ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Business Law

Course Description: This course develops an understanding of legal rights and responsibilities in personal law and business law with applications applied to everyday roles as consumers, citizens, and workers. The student will have an understanding of the American legal system, courts/court procedures, criminal justice system, torts, the civil justice system, oral and written contracts, sales contracts and warranties, and consumer protection. Legal terminology is emphasized. Leadership development will be provided through FBLA.

Academic Expectations	Content/Process
<p>2.14, 2.15, 2.19</p> <p>2.14, 2.15, 2.19</p> <p>2.30, 5.1, 6.3</p> <p>2.14, 6.1, 6.2</p> <p>2.14, 5.4, 6.3</p> <p>2.18, 5.1, 6.2</p> <p>2.14, 2.30, 5.1</p> <p>2.36, 2.38, 6.3</p> <p>1.12, 4.0, 6.2</p> <p>2.36, 2.37</p> <p>1.9, 1.10, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> • identify ways laws affect individuals, sources of law, constitutional rights and responsibilities of U.S. citizens, and the responsibilities of government. • describe and analyze the American Legal System and identify the essentials of a contract and examine the characteristics of contracts. • explain various aspects of consumer protection including deceptive advertising, agencies which aid the consumer, and federal legislation. • explain commercial paper and commercial contracts and warranties. • describe rights and duties of employee, employer, and independent contractor and other important aspects of employment. • examine ways businesses can be created including their rights, limitations, and liabilities. • explain about real and personal property and wills. • research career opportunities in the legal profession. • utilize activities of FBLA as an integral component of course content and leadership development. • demonstrate employability and social skills relative to the career cluster. • apply math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Business Management

Course Description: This course emphasizes the skills needed for managing a business that involves the selection and supervision of employees including efficient use of time, personnel, facilities, and financial resources. Students will explore forms of business ownership; typical business organizational structure; product or service promotion in business; effective communications; human relations skills required in dealing with employees; and effective management strategies used in personnel, finance, production, marketing, and information processing. Leadership development will be provided through FBLA.	
Academic Expectations	Content/Process
2.6, 2.18, 2.20 2.1, 2.2 2.16, 2.17, 2.19 1.10, 1.13, 1.14 5.3, 6.1, 6.3 2.36, 5.3 2.37, 2.38 1.16, 2.20 2.37, 3.0, 4.0 2.37, 3.0, 4.0 2.36, 2.37 1.9, 1.10, 1.12	Students will <ul style="list-style-type: none"> • describe the economic system of the United States. • research the structure of business ownership and explain considerations in business planning. • identify and explain basic functions of management, management styles, criteria used in setting and achieving goals, leadership characteristics, and procedures for monitoring and evaluating employee performance. • identify and compare sources of capital and marketing activities. • discuss how global issues and international trade has and will affect management types, styles, and trends. • research and analyze career opportunities in management and demonstrate leadership characteristics. • develop an employment portfolio (resume, letters of reference, etc.) and demonstrate job interview techniques. • research and cite major laws/regulations that affect management and examine the importance of work ethic. • utilize activities of FBLA as an integral component of course content and leadership development. • participate in work-based learning (mentoring, shadowing, co-op, etc.) and service learning. • demonstrate employability and social skills relative to the career cluster. • apply math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Business and Marketing Career Exploration

Course Description: This course provides students with a survey of skills needed for school-to-work transition. Opportunities to explore the business and marketing career cluster and career paths, to heighten self-awareness, and to develop priorities and career decision-making skills are also provided. A variety of instructional resources, self-assessment instruments, and career interest surveys are included. Interpersonal skill development and orientation to word processing, computer spreadsheet, and database are included. Leadership development will be provided through FBLA and/or DECA. <i>(This course is cross referenced with Marketing Education.)</i>	
Academic Expectations	Content/Process
1.12	Students will <ul style="list-style-type: none"> reinforce basic skills in human relations and in both written and oral communication including customer relations.
1.16, 2.36	<ul style="list-style-type: none"> develop a personal portfolio of careers to explore; research and prepare reports about business and marketing careers.
2.31	<ul style="list-style-type: none"> complete self-assessment surveys to link interests, hobbies, skills, and school subjects to occupations.
2.3, 2.16, 2.19	<ul style="list-style-type: none"> complete a career interest survey identifying general likes and dislikes, personal skills, and job values.
2.37, 2.38	<ul style="list-style-type: none"> complete a job application, compose a resume and a letter of application, and prepare for an interview.
2.14, 2.17, 5.4	<ul style="list-style-type: none"> define world of work vocabulary; explain concepts relating to the world of work; and explore the importance of business ethics.
2.29, 2.36	<ul style="list-style-type: none"> develop and/or update Individual Graduation/Career Plans.
2.17, 2.33	<ul style="list-style-type: none"> develop decision-making, problem-solving, and critical thinking skills to become life-long learners and self-directed individuals.
1.16, 6.2	<ul style="list-style-type: none"> develop and key a budget using spreadsheet and database software, based upon a desired adult lifestyle.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply communication skills within the technical content.
2.36, 2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
1.12, 4.0, 6.2	<ul style="list-style-type: none"> utilize activities of FBLA and/or DECA as an integral component of course content and leadership development.
Connections	
<ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Business Principles and Applications

Course Description: This course establishes basic foundations for further study in business and marketing courses and provides essential information for making financial and economic decisions. Students learn about the fundamentals of the American free enterprise system and world economies; application of sound money management for personal and family finances; credit management; consumer rights and responsibilities; forms of business ownership; risk and insurance; and the importance of international trade. Leadership development will be provided through FBLA and/or DECA. <i>(This course is cross referenced with Marketing Education.)</i>	
Academic Expectations	Content/Process
2.16, 2.18, 2.19	Students will <ul style="list-style-type: none"> explain characteristics of the free enterprise system and economic growth, the law of supply and demand, role of automation and computers, the interdependency of people, and the importance of world trade.
2.14, 2.15, 2.16	<ul style="list-style-type: none"> identify and analyze constitutional freedom, responsibilities, and rights of U.S. citizens, and discuss business ethics and areas in which businesses are thought to have social responsibility.
2.14, 2.18, 2.19	<ul style="list-style-type: none"> differentiate capitalism, socialism, and communism; and identify demographic, geographic, and psychographic trends in consumer market.
2.18, 2.33, 6.1	<ul style="list-style-type: none"> compare sole proprietorship, partnership, corporation, and cooperative; compare consumers' cooperative to a producers' cooperative.
1.9, 2.18, 2.33	<ul style="list-style-type: none"> identify major types of financial institutions and define and explain terms relating to credit; explain what is involved in financial security, insurance and retirement planning, and saving and investing.
2.36, 2.38, 6.3	<ul style="list-style-type: none"> research and analyze career opportunities in business and marketing and the relationship of education, employment, and wages; identify and describe good job search techniques; and prepare the necessary job application tools.
2.18, 2.30, 2.33	<ul style="list-style-type: none"> analyze and discuss the role of the consumer; and recognize consumer rights and responsibilities; distinguish consumer and industrial markets.
1.9, 2.29, 2.33	<ul style="list-style-type: none"> identify and explain what is involved in budgeting and demonstrate budgeting and recordkeeping; and examine aspects of resource management such as personal decision making and housing and automobile decisions (including insurance).
2.15, 5.1, 6.1	<ul style="list-style-type: none"> identify and explain government and labor's role in business including the role of labor unions and taxation.
2.16, 2.18	<ul style="list-style-type: none"> identify the nine functions of marketing and explain the economic value of marketing.
1.12, 4.0, 6.2	<ul style="list-style-type: none"> utilize activities of FBLA and/or DECA student organizations as an integral component of course content and leadership development.
2.36, 2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Business Technology

Course Description: This course is designed to be a hands-on exploration of business technologies in the following areas: accounting, finance and credit, business management, marketing, economics, and computer applications. Leadership development will be provided through FBLA.	
Academic Expectations	Content/Process
1.2, 5.1, 6.2	Students will <ul style="list-style-type: none"> identify basic accounting terminology and concepts.
1.9, 2.18, 2.33	<ul style="list-style-type: none"> identify major types of financial institutions and define and explain terms relating to credit and what is involved in financial security and income taxes.
1.12, 2.17, 2.20	<ul style="list-style-type: none"> identify and explain basic functions of management; identify criteria used in setting and achieving goals and developing leadership characteristics, and explain and evaluate various management strategies.
2.18, 5.3, 6.3	<ul style="list-style-type: none"> explain and analyze basic economic concepts and the role of business and individuals in a free enterprise system.
1.2, 1.16, 2.9	<ul style="list-style-type: none"> demonstrate concepts, terminology and uses of word processing software, spreadsheet software and graphs, database software, desktop publishing software, presentation software, electronic communications software, the Internet, and desktop management software.
2.36, 6.2, 6.3	<ul style="list-style-type: none"> research careers in business, management, and marketing and develop a personal portfolio of careers.
2.36, 2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply math and communication skills within the technical content.
1.12, 4.0, 6.2	<ul style="list-style-type: none"> utilize activities of FBLA as an integral component of course content and leadership development.
Connections	
<ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Computer Applications

Course Description: This course is designed to provide students with entry-level experience with practical applications through hands on use of word processing, spreadsheets and graphs, database management, desktop publishing, presentation software, desktop management, electronic communications, and the Internet. Leadership development will be provided through FBLA.

SUGGESTED PREREQUISITE: Keyboarding Applications or its equivalent.

Academic Expectations	Content/Process
<p>1.2, 1.3, 1.16</p> <p>1.16, 5.2</p> <p>1.3, 1.16, 2.9</p> <p>2.37, 5.3, 5.4</p> <p>1.16, 2.37, 5.3</p> <p>1.16, 2.9, 5.2</p> <p>1.15, 1.16, 2.22</p> <p>1.2, 1.3, 6.3</p> <p>1.16, 2.36, 2.38</p> <p>1.16, 2.37, 5.4</p> <p>2.36, 2.37</p> <p>1.9, 1.10, 1.12</p> <p>1.12, 4.0, 6.2</p>	<p>Students will</p> <ul style="list-style-type: none"> • identify and apply basic computer operating skills (i.e., disk formatting, copying, and backup). • identify basic system maintenance operations for hardware and software. • explain concepts, terminology and uses of word processing software, spreadsheet software and graphs, database software, desktop publishing software, presentation software, electronic communications software, the Internet, and desktop management software. • demonstrate creating, editing, saving, revising, and printing word processing documents; spreadsheets and related graphs; database files and related reports. • show the integration of word processing, spreadsheet, and/or database files including graphs and graphics. • demonstrate creating, editing, saving, and printing desktop publishing documents, which include text, imported text, and graphics using principles of layout and design. • illustrate electronic presentations using a variety of concepts available in presentation software. • identify and describe types of electronic communication. • research and analyze career opportunities in information processing and develop an employment portfolio (letter of application, resume, etc.). • develop Future Business Leaders of America projects using a variety of software applications. • demonstrate employability and social skills relative to the career cluster. • apply math and communication skills within the technical content. • utilize activities of FBLA as an integral component of course content and leadership development.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Electronic Office

Course Description: This course refines the skills established in previous business courses using the most up-to-date technology. Emphasis is on computer simulations that best prepare students for the 21st century. A computerized workstation with industry-standard software is required for each student. The course content includes advanced word processing applications, database management, spreadsheet applications, employability skills, communication skills, ethical considerations, and office environment management. Leadership development will be provided through FBLA.

SUGGESTED PREREQUISITE: Word Processing or Computer Applications

Academic Expectations	Content/Process
<p>1.16, 2.36, 2.38</p> <p>1.10, 1.11, 2.30</p> <p>1.11, 1.16, 5.4</p> <p>1.4, 1.10, 1.16</p> <p>1.3, 1.16, 2.34</p> <p>1.10, 1.16, 5.1</p> <p>1.2, 1.3, 1.16</p> <p>2.37, 3.0, 4.0</p> <p>1.12, 4.0, 6.2</p> <p>2.36, 2.37</p> <p>1.9, 1.10, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> • research and analyze career opportunities in office careers; demonstrate job interview techniques; develop an employment portfolio (letter of application, resume, etc.); and examine an employment test you take. • analyze and design the organization of offices; analyze the duties of office workers; and explain and analyze office ergonomics. • create and format various personal and business documents using word processing software; apply language arts' rules; use proofreaders' marks, spell check and thesaurus, reference materials, and grammar check. • use the computer and electronic calculator, electronic desktop management software, and machine transcription equipment and transcribe documents. • demonstrate proper telephone etiquette and identify different types of electronic communications and explain and use postal and shipping services. • explain records management and demonstrate the various methods of filing and create a database management system. • identify and demonstrate reprographics and communication skills. • demonstrate work-based learning (shadowing, mentoring, co-op, etc.) and service learning. • utilize activities of FBLA as an integral component of course content and leadership development. • demonstrate employability and social skills relative to the career cluster. • apply math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Entrepreneurship

Course Description: This course provides students the opportunity to explore the rewards and risks of business ownership. Emphasis is given to the characteristics of successful entrepreneurs: planning, organizing, and beginning a business; financing and managing the enterprise; franchising opportunities; and sources of financing. Cooperative and/or shadowing experiences may be used to enhance course instruction. Leadership development will be provided through FBLA and/or DECA. *(This course is cross referenced with Marketing Education.)*

Academic Expectations	Content/Process
<p>1.4, 1.12 1.8, 2.1, 2.8, 2.11 1.16 1.4, 2.20, 2.1 2.36, 2.37, 2.38 2.4, 5.5, 6.1, 6.2 2.21, 2.25 2.33 1.1, 5.1, 5.4 2.14, 2.29, 5.1, 6.2 2.2, 2.3, 2.15, 2.18 2.2, 2.3, 2.7 5.3 2.8, 2.30 2.14, 2.29 1.6, 5.1, 6.3 1.12, 4.0, 6.2 2.36, 2.37 1.9, 1.10, 1.2</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate strong customer service orientation. • describe the financial statements needed for a business plan and the purposes in financial planning. • investigate the role of international trade, opportunities of global markets, and the potential of international trade. • describe the legal considerations for starting a business. • formulate a business plan and describe its components, recognizing the dual roles of a small business owner. • distinguish intensive, integrative, and diversification growth strategies. • explain the purpose of a working business plan. • identify sources of assistance for entrepreneurs. • discuss market analysis to determine target market (who is the customer). • examine the role of management in a successful business, specific management techniques for small business, and management strategies. • analyze the risks and rewards of starting a business. • analyze pricing in the marketing mix, pricing strategies, and the establishment of a pricing strategy. • describe the role of market analysis in business ownership. • identify, evaluate, and select sources for financing a business venture. • identify training procedures, hiring policies, and rights and responsibilities of small business employees. • select and analyze computer software/hardware options for small business; examine benefits of organization membership. • utilize activities of FBLA and/or DECA as an integral component of course content and leadership development. • demonstrate employability and social skills relative to the career cluster. • apply math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Retail Skill Standards • National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Exploratory Computers

Course Description: This course is for 7th grade students and is a 6-, 9-, or 12-week course that provides the student with hands-on illustration of the following:

- ◆ Keyboarding—apply appropriate fingering techniques and posture
- ◆ Word Processing—create, edit, print, save, and retrieve documents
- ◆ Database—enter data, search and sort, and create simple reports
- ◆ Spreadsheets—enter data, calculate, and print reports
- ◆ Career Exploration—explore career opportunities
- ◆ *Graphics—create, print, save, and retrieve data
- ◆ *Telecommunications—introduction to information transfer, electronic mail, and database

**If software is*

*available**

Academic Expectations	Content/Process
<p>1.16, 2.34, 2.35</p> <p>1.16, 2.7, 2.10</p> <p>2.36, 2.37, 2.38</p> <p>1.1, 1.10, 6.1</p> <p>1.16, 2.37</p> <p>2.37</p> <p>2.37, 3.0</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate proper keyboarding techniques. • apply formatting to block style letters, reports, charts/tables, and spreadsheets. • explore job and career opportunities in computer-related areas and recognize the importance of communication skills. • apply standard rules of spelling, punctuation, grammar, and capitalization. • identify and explain telecommunications. • identify characteristics of positive work habits and a good work ethic. • demonstrate organization and care of workstation.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Age-appropriate software packages. • <i>Kentucky Cyber Keys: A P-8 Guide to Keyboarding</i> • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Financial Services I

Course Description: This course is designed for 11th and 12th grade students interested in pursuing a career in the financial institution field. It involves operation of a student financial center in cooperation with a sponsoring bank, which provides application of banking and financial procedures and concepts. Leadership development will be provided through FBLA and/or DECA. *(This course is cross referenced with Marketing Education.)*

SUGGESTED PREREQUISITE: One Business Or Marketing credit and Special Permission of the Instructor

Academic Expectations	Content/Process
<p>1.3, 2.33</p> <p>2.36, 2.37</p> <p>2.7, 2.8, 6.2</p> <p>2.16, 2.17</p> <p>1.1, 2.18</p> <p>2.37, 2.38</p> <p>1.2, 2.30</p> <p>2.7, 2.8</p> <p>2.30, 4.0</p> <p>6.3</p> <p>1.12, 4.0, 5.1</p> <p>2.36, 2.37</p>	<p>Students will</p> <ul style="list-style-type: none"> • develop and manage a student financial center through the sponsorship of a local bank. • research career opportunities in financial services. • demonstrate financial activities of a student financial center including preparing and analyzing financial statements. • apply communication skills and demonstrate appropriate customer/employee and employee/employer interactions/relations. • define basic banking terminology and develop an understanding of how banks function within the U.S. economy. • develop an employment portfolio (resume, letters of reference, etc.) and demonstrate job interview techniques. • define examples of credit used by consumers, businesses, and government. • apply math and communication skills within the technical content. • develop standards and policies for extending credit and making collections. • discuss relationship between retailers and financial services (in-store banks, ATMs, credit cards, financing/layaway, etc.). • utilize activities of FBLA and/or DECA as an integral component of course content and leadership development. • demonstrate employability and social skills relative to the career cluster.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS • National Retail Skill Standards 	

Financial Services II

Course Description: Financial Services II is a continuation of Financial Services I, providing opportunities to enhance students' math and English portfolio writings. Students continue to learn and practice financial activities associated with the operation of a bank and other finance-related institutions in addition to assuming management and supervisory responsibilities, including training "new employees." Students will participate in a work-based learning experience (i.e., co-op, internship, shadowing, mentoring, etc.). Leadership development will be provided through FBLA and/or DECA. <i>(This course is cross referenced with Marketing Education.)</i>	
Academic Expectations	Content/Process
1.3, 2.33 6.1, 6.2 2.36, 2.37 2.7, 2.8 1.12 2.37, 2.38 1.1, 2.16, 2.18 2.8, 2.11 6.3 1.12, 4.0, 5.1 5.2, 5.5, 2.37 2.36, 2.37	Students will <ul style="list-style-type: none"> demonstrate interpersonal management skills and provide training and supervision for new employees. participate in a work-based learning experience (i.e., shadowing, mentoring, internship, or co-op) related to a financial services industry. explain operations of the student financial center to first-year students. plan, organize, and prepare financial center for opening. apply communication skills by preparing and presenting oral presentations on work ethics, professional image, and other work-related topics. update employment portfolio and individual graduation plan. demonstrate decision-making skills and teamwork by reviewing current fee structure, policies, interest rates, and products and making recommendations for change if needed. apply appropriate math and communication skills relative to the career cluster. discuss relationship between retailers and financial services (in-store banks, ATMs, credit cards, financing/layaway, etc.). utilize activities of FBLA and/or DECA as an integral component of course content and leadership development. continue simulated work experience in the student bank and shadow personnel in a finance-related position. demonstrate employability and social skills relative to the career cluster.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) National Standards: Administrative Support Occupations/Skill Standards, V-TECS National Retail Skill Standards 	

International Business

<p>Course Description: This course is designed to provide students with basic knowledge and skills related to international economic activities and global business transactions. Students will examine the relationship of global business activities to nations, companies, and individuals in their roles as workers, consumers, and citizens; and will examine economic, cultural, geographic, historic, and technological influences on global business activities, management principles, human relation theories, information systems, production, marketing, and finance activities. Students will also explore career planning, mathematical and data analysis, written and oral communication, and problem-solving skills related to international business activities. Leadership development will be provided through FBLA.</p>	
Academic Expectations	Content/Process
<p>2.16, 2.20, 5.3</p> <p>2.16, 2.20, 5.3</p> <p>2.17, 2.18, 5.1</p> <p>2.17, 2.18, 5.1</p> <p>2.17, 2.19, 5.3</p> <p>2.17, 2.19</p> <p>2.17, 2.19</p> <p>2.8, 2.17, 2.19</p> <p>2.16, 2.17, 2.19</p> <p>1.16, 2.17, 2.37</p> <p>2.36, 2.37</p> <p>1.12, 4.0, 6.2</p> <p>1.9, 1.10, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> • explain the impact international business has on consumers, businesses, and countries. • discuss how the economic, socio-cultural, political, legal, and technological influences affect international business activities. • analyze foreign trade activities. • define methods of conducting international business. • describe information systems and communications for international business. • evaluate human resource needs. • evaluate business management techniques and international marketing activities. • analyze foreign exchange rates and currency values. • analyze the global impact of the stock and bond markets. • research and analyze career opportunities in international business. • demonstrate employability and social skills relative to the career cluster. • utilize activities of FBLA as an integral component of course content and leadership development. • apply math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Keyboarding Applications

Course Description: This course is designed for students who have little or no keyboarding experience. Keyboarding Applications will develop the touch system of keying with added emphasis on the development of proper keyboarding techniques, speed, and accuracy. Six to nine weeks will be spent developing the touch system. The student will apply techniques for proofreading, editing, word division, capitalization, and punctuation for production of mailable copies of letters, simple business forms, tabulated information, and manuscripts. A computerized workstation with appropriate software is required for each student. *Telecommunications concepts will be addressed through simulation or application. After completion of Keyboarding Applications, a student may take either Word Processing or Computer Applications. Leadership development will be provided through FBLA.

Where telecommunications software is available

Schools may determine through an appropriate test instrument whether students will enroll in Keyboarding Applications, Computer Applications, or Word Processing.

Academic Expectations	Content/Process
<p>1.16, 2.34 1.1, 1.10, 6.1 2.37, 2.7, 5.3</p> <p>1.16, 5.5</p> <p>1.11, 2.36, 6.1 1.16, 2.36, 2.37</p> <p>1.16, 2.36, 2.38</p> <p>2.37, 3.0, 5.4</p> <p>2.37, 3.0, 4.0</p> <p>1.9, 1.10, 1.12 2.36, 2.37</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate keyboard techniques. • apply language rules, proofreader's marks, and reference materials. • apply basic formatting procedures and manipulate data in letters, reports, simple tables, spreadsheets, graphics, graphs and charts, and databases. • create or simulate electronic communication and telecommunications of the following: voice, data, image, text, and video. • compose documents. • research and analyze career opportunities in computer-related careers. • complete a career portfolio which includes letter of application, employment application, letter of reference, resume, interviewing techniques, follow-up letter, and letter of resignation. • develop good work habits and a work ethic that impacts success at school and in the workplace. • utilize activities of FBLA as an integral component of course content and leadership development. • apply communication skills within the technical content. • demonstrate employability and social skills relative to the career cluster.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Legal Office

Course Description: This course enables a student to gain concepts, skills, and techniques in legal terminology and various forms used in the legal profession. The recommended prerequisite is Word Processing. Leadership development will be provided through FBLA.

SUGGESTED PREREQUISITE: Computer Applications or Word Processing

Academic Expectations	Content/Process
<p>1.1, 5.3, 6.3</p> <p>1.16, 5.1, 6.3</p> <p>1.16, 5.1, 6.3</p> <p>1.3, 1.16, 5.4</p> <p>1.16, 2.37, 2.38</p> <p>1.10, 1.11</p> <p>2.36, 2.37</p> <p>1.9, 1.10, 1.12</p> <p>1.12, 4.0, 6.2</p>	<p>Students will</p> <ul style="list-style-type: none"> • explain legal terminology and legal business terminology. • apply formatting to court documents such as adoption papers, affidavits, briefs, depositions, etc. • apply formatting to client documents such as mortgages, promissory notes, wills, etc. • demonstrate the ability to take and transcribe minutes from a meeting. • research and analyze career opportunities in legal careers; demonstrate job interview techniques; and develop an employment portfolio (letter of application, resume, etc.). • apply standard rules of spelling, punctuation, grammar, and capitalization. • demonstrate employability and social skills relative to the career cluster. • apply communication skills within the technical content. • utilize activities of FBLA as an integral component of course content and leadership development.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Mathematics for Business and Industry

Course Description: This course enables the student to explore mathematical content for personal, business, and industrial use. Math concepts and skills are applied through study and problem-solving activities in real-world situations in the following areas: banking, measurement, borrowing and investing, consumer purchases, and financial management. Appropriate business forms are used in each unit. Leadership development will be provided through FBLA.	
Academic Expectations	Content/Process
1.16, 2.7, 2.8 1.9, 2.7, 2.8 2.7, 2.8, 2.18 1.9, 2.7, 2.8 2.37, 3.0, 4.0 2.36, 6.2, 6.3 1.1, 1.9, 2.7 1.9, 2.7, 2.8 1.16, 2.7, 2.8 1.9, 2.7, 2.30 1.9, 2.7, 2.30 1.9, 2.7, 2.8 2.36, 2.37 1.12, 4.0, 6.2	Students will <ul style="list-style-type: none"> • use the touch method on electronic calculators to solve real-world mathematical problems which relate to business and industry. • apply math and communication skills within the technical content. • use mathematical operations to enable students to understand gross and net income and different methods of earning income. • demonstrate mathematical reasoning in figuring and recording checking and savings account transactions. • recognize the opportunity to participate in Future Business Leaders of America as a productive group member. • research and analyze career opportunities requiring application of math skills. • use mathematical reasoning to compare cash purchases, credit cards, charge accounts, markups, and discounts. • demonstrate mathematical reasoning in calculating various types of loans, investments, and interest, including compound interest. • design and manipulate spreadsheets and graphs according to the availability of technology. • use mathematical problem solving to figure the costs involved in purchasing and maintaining a vehicle and a home and the methods of figuring depreciation. • identify and compare various types of insurance. • demonstrate mathematical applications relating to personnel, production, sales, marketing, warehousing, and distribution. • demonstrate employability and social skills relative to the career cluster. • utilize activities of FBLA as an integral component of course content and leadership development.
Connections <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Medical Office

Course Description: This course enables a student to gain concepts, skills, and techniques in medical terminology and various forms used in the medical profession. The recommended prerequisite is Word Processing. Leadership development will be provided through FBLA.

SUGGESTED PREREQUISITE: Computer Applications or Word Processing.

Academic Expectations	Content/Process
	Students will
1.1, 5.3, 6.3	<ul style="list-style-type: none"> explain medical terminology.
1.16, 5.1, 6.3	<ul style="list-style-type: none"> apply formatting to medical documents such as admitting forms, discharge forms, insurance forms, etc.
2.29, 5.1, 6.3	<ul style="list-style-type: none"> demonstrate the ability to handle scheduling, to receive and process patients/visitors, to properly code diagnoses and surgical procedures, and to work with other patient services and records.
1.9, 2.7, 5.4	<ul style="list-style-type: none"> illustrate financial services involved in the medical profession such as accepting payment of patient accounts and billing.
1.4, 1.16, 5.4	<ul style="list-style-type: none"> demonstrate the ability to transcribe medical records.
1.16, 2.37, 2.38	<ul style="list-style-type: none"> research and analyze career opportunities in medical careers; demonstrate job interview techniques; and develop an employment portfolio (letter of application, resume, etc.).
1.10, 1.11	<ul style="list-style-type: none"> apply standard rules of spelling, punctuation, grammar, and capitalization.
1.12, 4.0, 6.2	<ul style="list-style-type: none"> utilize activities of FBLA as an integral component of course content and leadership development.
2.36, 2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply math and communication skills within the technical content.
Connections	
<ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) 	
<ul style="list-style-type: none"> National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Multimedia Publishing

Course Description: This hands-on course applies publishing and presentation concepts through the development of sophisticated business documents. These documents include, but are not limited to, brochures, manuscripts, reports, programs, catalogues, newsletters, flyers, business forms, and graphs. Automated equipment such as scanners, digital cameras, CD Rom, color laser printers, and laser disks may be utilized in creating the documents as well as clip art. Formatting, editing page layout, and design concepts are taught. The mailable or useable copy standard is applied to all projects. Students will develop communication skills, problem-solving techniques, cooperative learning, and interpersonal skills. Leadership development will be provided through FBLA.

SUGGESTED PREREQUISITE: Word Processing or Computer Applications.

Academic Expectations	Content/Process
<p>1.1, 1.2, 1.16</p> <p>2.9, 2.10</p> <p>2.36, 2.37, 6.3</p> <p>1.13, 5.4</p> <p>5.2, 5.4</p> <p>1.13, 2.9</p> <p>1.15, 2.22</p> <p>1.16, 2.9, 5.2</p> <p>1.16, 5.5</p> <p>1.13, 2.10</p> <p>1.13, 2.9, 2.10</p> <p>2.36, 2.37</p> <p>1.12, 4.0, 6.2</p> <p>1.9, 1.10, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> • apply language rules and proofreader's marks; use reference materials, proper style, grammar, and spell check. • define and apply terminology associated with desktop publishing, layout, and design. • research and analyze career opportunities in multimedia publishing and graphic arts. • identify and evaluate industry-standard hardware and software components of a multimedia publishing system. • design a web page. • compose and design effective business publications and documents. • develop multimedia presentations (slide show, video, audio, etc.). • design page layout with appropriate proportions, balance, and typography. • demonstrate the ability to use the Internet and create or simulate telecommunications conferencing. • use business graphics and paint, draw, and image-editing programs. • design Future Business Leaders of America reports using effective multimedia publishing skills. • demonstrate employability and social skills relative to the career cluster. • utilize activities of FBLA as an integral component of course content and leadership development. • apply math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Touch Keyboarding for 4-6th Grade

Course Description: This is a six-to-nine week course where students will develop skills in operating a keyboard by touch with emphasis on entering the alphabet, numbers, and symbols with proper technique.	
Academic Expectations	Content/Process
1.16, 2.34, 2.35 1.16, 2.7, 2.10 1.1, 1.10, 6.1 2.37	Students will <ul style="list-style-type: none"> demonstrate proper keyboarding techniques. apply formatting to simple documents (letters, reports, and articles). apply standard rules of spelling, punctuation, grammar, and capitalization. organize and maintain workstation.
Connections <ul style="list-style-type: none"> Age-appropriate software packages <i>Kentucky Cyber Keys: A P-8 Guide to Keyboarding</i> Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Word Processing

Course Description: This course is designed for students who have already developed proficiency in Exploratory Computers (or its equivalent). The student will spend two to three weeks reviewing the touch system of keying with emphasis on proper technique and developing speed and accuracy. The student will apply techniques for composing, proofreading, editing, word division, capitalization, and punctuation for production of mailable copies of letters, business forms, tables, and reports. In-depth instruction for the generation of desktop publishing documents, spreadsheets, graphics, graphs, charts, and databases through application is a vital part of this course. The student will also research career opportunities in computer-related careers. A computerized workstation with appropriate software is required for each student. Leadership development will be provided through FBLA.

Telecommunications concepts will be addressed through simulation or application where telecommunications software is available. Schools may determine through an appropriate test instrument whether students will enroll in Keyboarding Applications, Computer Applications, or Word Processing.

SUGGESTED PREREQUISITE: Exploratory Computers or Keyboarding Applications.

Academic Expectations	Content/Process
<p>1.16, 2.34</p> <p>1., 1.10, 6.1 1.16, 2.37, 5.4</p> <p>1.2, 1.4, 6.3</p> <p>1.16, 5.5</p> <p>1.11, 1.16, 6.1 2.36, 6.2, 6.3 2.36, 2.38, 6.3</p> <p>2.37, 3.0, 5.4</p> <p>2.37, 3.0, 4.0</p> <p>2.36, 2.37 1.9, 1.10, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> demonstrate correct technique in operating the keyboard; use skill building drills to increase accuracy and speed. apply language rules, proofreader's marks, and reference materials. apply basic and advanced formatting procedures and manipulate data in the following: letters, reports, tables, spreadsheets, graphics, graphs and charts, and databases. identify steps in the word processing cycle; and define and use terminology associated with office automation concepts. create or simulate electronic and telecommunications in the following: voice, data, image, text, and video; and create desktop publishing documents. compose documents using basic formatting guidelines. research and analyze career opportunities in computer-related careers. complete a career portfolio which includes a letter of application, an employment application, a letter of reference, a resume, interviewing techniques, a follow-up letter, and a letter of resignation. develop good work habits and a work ethic that impacts success at school and in the workplace. utilize activities of FBLA as an integral component of course content and leadership development. demonstrate employability and social skills relative to the career cluster. apply math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

**High School Science
Nutritional and Food Science**

FAMILY AND CONSUMER SCIENCES

Course Title	Recommended Grade Level							Recommended Credit
	6	7	8	9	10	11	12	
* Nutritional and Food Science					x	x	x	1
Introductory Life Skills	x	x	x					
Life Skills				x	x			1
Apparel Management					x	x	x	½
Career and Family					x	x	x	½
Careers in Interiors/Furnishings						x	x	2
Child Development Services I						x	x	3
Child Development Services II							x	3
Child/Human Development					x	x	x	1
Commercial Foods I						x	x	3
Commercial Foods II							x	3
Consumer Economics					x	x	x	½
Culinary Skills						x	x	1
Foods					x	x	x	½
Housing Environments					x	x	x	½
Parenting					x	x	x	½
Relationships					x	x	x	½
Specialized Services in Hospitality					x	x	x	1
Textile Services						x	x	2

Overview of Family and Consumer Sciences

Family and Consumer Sciences Education prepares students for family life, work life and careers in Family and Consumer Sciences. Opportunities are provided to develop knowledge and skills that focus on career majors/clusters. These include Family and Consumer Sciences Education, Child Care, Food Service, Housing and Interiors, Textiles and Apparel, Hospitality Services and Family Services.

A statewide articulation agreement in Early Childhood Education provides students an opportunity to proceed in the identified child development areas in a non-duplicative manner from the secondary level to postsecondary technical and/or higher education.

Units of instruction at the middle school level introduce students to the field of Family and Consumer Sciences. At the secondary level in-depth courses allow students to pursue specific career majors/clusters and participate in work-based learning.

Future Homemakers of America is the official student organization and is an integral part of the instructional program at all levels. Students are encouraged to join the local chapter and fully benefit from citizenship training, personal achievement, leadership development at local, regional and state levels and skills competition in STAR Events (Students Taking Action for Recognition).

***Interdisciplinary Course**

High School Science Nutritional and Food Science

HUMAN SERVICES CLUSTER

CAREER MAJORS

Family and Consumer Sciences Education	Child Care	Food Service	Textiles and Apparel
Introductory Life Skills (7 th - 8 th Grades) (No credit for career major)			
Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses
Life Skills Career & Family Child/Human Development Consumer Education Foods Housing Environments Parenting Relationships	Life Skills Career and Family Child/Human Development Child Development Services I & II Parenting Relationships	Life Skills Career and Family Foods Nutritional Science Commercial Foods I & II *Retail Services I	Life Skills Career and Family Apparel Management Consumer Education *Entrepreneurship *Fashion, Marketing I Textile Services
Elective Courses	Elective Courses	Elective Courses	Elective Courses
Apparel Management Nutritional Science Textile Services	Foods Nutritional Science *Business Management	Relationships *Business Management	Relationships *Advertising/Promotion I *Business Management *Principles of Marketing

Housing and Interiors	Hospitality Services	Family Services
Recommended Courses	Recommended Courses	Recommended Courses
Life Skills Career and Family Careers in Interiors & Furnishings Consumer Education Housing Environments Textile Services *Business Management *Computer Assisted Design Technology or * Computer Aided Drafting *Floriculture and Floral Design	Life Skills Career and Family Culinary Skills Foods Relationships Specialized Services in Hospitality *Introduction to Hospitality	Life Skills Career and Family Child/Human Development Consumer Education Foods Relationships *Business Management *Health Services
Elective Courses	Elective Courses	Elective Courses
Apparel Management Relationships	*Principles of Marketing * Entrepreneurship	Apparel Management

* Other courses directly related to career major.

NOTE: Three credits must come from recommended courses. To complete a career major, students must earn four career-related credits within the major and 3 math, 2 science, 4 English, and 2 social studies credits. **Nutritional Science is an interdisciplinary course which meets the graduation requirements for Life Science.**

**High School Science
Nutritional and Food Science**

MODEL COURSE SEQUENCE

FAMILY AND COMSUMER SCIENCES CAREER CLUSTER			
ACADEMIC CORE			
9TH	10TH	11TH	12TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Life Skills	Consumer Economics	Housing	Career and Family
Journalism	Psychology	Relationships	Law and Justice
Humanities	Anthropology	Child/Human Development	Nutritional Science

FAMILY AND COMSUMER SCIENCES CAREER CLUSTER			
ACADEMIC CORE			
9TH	10TH	11TH	12TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Life Skills	Foods	Parenting	Entrepreneurship
Humanities	Computer Application	Floral Design	Apparel Management
French	Landscaping	Consumer Economics	Speech

**High School Science
Nutritional and Food Science**

MODEL COURSE SEQUENCE

CHILD CARE CAREER MAJOR			
ACADEMIC CORE			
9TH	10TH	11TH	12TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Life Skills	Child/Human Development	Child Development Services I	Career & Family
	Parenting		Child Development Services II

CHILD CARE CAREER MAJOR			
ACADEMIC CORE			
9TH	10TH	11TH	12TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Life Skills	Child/Human Development	Child Development Services I	Child Development Services II
	Foods		Relationships

High School Science Nutritional and Food Science

Course Overview:

Nutritional and food science is a one-credit, interdisciplinary, elective course in which students gain an understanding of selected physical and life science concepts and apply them to every day life. Much of the study and work in this course is directed toward providing students with an understanding of concepts of nutrition and relationships between nutrition and science. Students use inquiry methods to conduct laboratory investigations. In addition, students explore career possibilities in science, nutrition, microbiology, family and consumer sciences, dietetics, and other research specialties.

Models are organized around guiding questions. Guiding questions direct teachers' choices of activities and are the questions students should be able to answer at the end of the course. Pages of models are arranged in pairs. On the left-hand page of each pair are guiding questions along with related academic expectations and correlations to the *Program of Studies* and nutritional and food science content chart. Sample activities and sample extensions for diverse learners are found on the right-hand page. While sample activities address *Program of Studies* content or content from elective areas, they are not intended to be comprehensive. Teachers still are responsible for planning instruction to meet the diverse needs of all their students.

Guiding Questions:

- What knowledge and skills are necessary to conduct scientific investigations in food science?
- How are nutrients used by the body?
- How is food energy used and stored in the body?
- What factors do microorganisms play in food preparation and decomposition?
- What careers are related to food science?

**High School Science
Nutritional and Food Science**

Academic Expectations	Content/Process
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>Students will</p> <ul style="list-style-type: none"> • formulate procedures for food science experiments. • conduct scientific sensory evaluations of food. • identify chemical symbols most often seen in food science. • interpret basic science such as composition of matter, atomic structure, chemical formulas and equations, and chemical and physical changes in food. • identify properties of acids and bases. • test pH of common foods and food ingredients. • determine function of water in the human body and food preparation. • identify properties and composition of lipids, carbohydrates, proteins, vitamins, and minerals and how the body uses each. • analyze functions of enzymes. • analyze breakdown of food molecules. • examine chemical bonds of leavening agents. • analyze roles and interrelationships of microorganisms and food and analyze benefits and disadvantages of microbial action. • investigate uses of food additives. • explore career paths in nutritional science. • integrate activities of Future Homemakers of America (FHA) as an integral component of course content and leadership development. • apply math, science, and communication skills within technical content. • demonstrate employability and social skills relevant to the career cluster.

**High School Science
Nutritional and Food Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>What knowledge and skills are necessary to conduct scientific investigations in food science?</p>	<p>Students will</p> <p>Program of Studies</p> <p>Physical Science</p> <ul style="list-style-type: none"> • investigate structure and physical properties of matter. • analyze atomic structure and electric forces. • investigate chemical reactions and energy. • examine the transfer of electrons or hydrogen ions between ions, molecules, or atoms. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use equipment, tools, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • examine the interaction between science and technology. • explore the impact of science on personal and community health. • recognize that scientific knowledge is subject to change. <p>Nutritional Science Content Chart</p> <ul style="list-style-type: none"> • formulate procedures for food science experiments. • conduct scientific sensory evaluations of food. • interpret basic science such as composition of matter, atomic structure, chemical formulas and equations, and chemical and

High School Science
Nutritional and Food Science

		<p>physical changes in food.</p> <ul style="list-style-type: none">• identify properties of acids and bases.• test pH of common foods and food ingredients.• apply math, science, and communication skills within technical content.• identify chemical symbols most often seen in food science.
--	--	---

High School Science

Nutritional and Food Science

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • use scientific journals (e.g., <i>Scientific American</i>, <i>Science</i>) and Internet resources to investigate methods used to conduct and document results of scientific research. Discuss organizational format used in scientific research. • design and conduct investigations to become familiar with measuring equipment and skills. Determine density of various substances. Compare volume measurements using various types of glassware (e.g., beaker, graduated cylinder). Compare masses using electronic and triple-beam balances. Organize data in tables. Graph mass versus volume measurements. Calculate slope to determine density. Explain in written laboratory reports differences in volume and mass measurements and explain why density may or may not be precise. <p><i>Technology suggestion: Use integrated software package to create graphs.</i></p> <ul style="list-style-type: none"> • develop observation skills by participating in tasting parties to identify senses used to enjoy food. Compare taste, texture, color, smell, and shape of foods (e.g., low-fat varieties, convenience foods, home-cooked items). Rank foods in order of preference. Discuss significance of test results. Visit local restaurants and write critiques of foods' sensory appeal. Write articles to review restaurants' appeal to diners. <i>Use this activity to develop possible writing portfolio entries (WP Transactive).</i> See <i>Nutrition Curriculum Activities Kit Level 1</i> activities <ul style="list-style-type: none"> Tasting Party Sensory Food Evaluation Lab See <i>Diet and Nutrition</i> activities <ul style="list-style-type: none"> Dare to Compare Variety is the Spice of Life • explore physiological and emotional reasons for hunger. Survey peers to determine how emotions influence eating habits. Keep daily journals of meals and snacks to explain thoughts and feelings prior to eating. Analyze observations to determine patterns and identify emotional reasons for hunger. See <i>Diet and Nutrition Activities</i> activity <ul style="list-style-type: none"> Eating and Emotions 	<p>Randy understands concepts at the same level as his peers. He has difficulty manipulating objects. For this activity, pair Randy with a peer for lab experiences in measuring. Each partner will be responsible for arriving at his own conclusions, based on raw data. Randy will audiotape his laboratory report (<i>Types of extensions: resources and materials, participation, demonstration of learning, level of support</i>).</p>

**High School Science
Nutritional and Food Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p>Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>What knowledge and skills are necessary to conduct scientific investigations in food science?</p>	<p>Students will Program of Studies Physical Science</p> <ul style="list-style-type: none"> • investigate structure and physical properties of matter. • analyze atomic structure and electric forces. • investigate chemical reactions and energy. • examine the transfer of electrons or hydrogen ions between ions, molecules, or atoms. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use equipment, tools, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • examine the interaction between science and technology. • explore the impact of science on personal and community health. • recognize that scientific knowledge is subject to change. <p>Nutritional Science Content Chart</p> <ul style="list-style-type: none"> • formulate procedures for food science experiments. • conduct scientific sensory evaluations of food. • interpret basic science such as composition of matter, atomic structure, chemical formulas and equations, and chemical and

High School Science
Nutritional and Food Science

		<p>physical changes in food.</p> <ul style="list-style-type: none">• identify properties of acids and bases.• test pH of common foods and food ingredients.• apply math, science, and communication skills within technical content.• identify chemical symbols most often seen in food science.
--	--	---

**High School Science
Nutritional and Food Science**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will:</p> <ul style="list-style-type: none"> • examine effects of advertising on food choices. Record types of foods shown on TV advertisements, length of ad time, and time of advertisement in graphic organizers. Plot results in circle graphs. Extend activity by using magazine ads. Create and videotape their own ads. Determine optimal viewing time to target appropriate markets. See <i>Diet and Nutrition Activities</i> activity Sense Appeal <p>Technology suggestion: Use integrated software package to create graphs.</p> <ul style="list-style-type: none"> • investigate physical and chemical properties and changes that occur during food preparation. Organize chemical parties. Make fudge, rock candy, no-bake cookies, and powdered, granulated drink mix to observe physical changes and bake cakes, fry eggs, and sour milk to observe chemical changes. Bring examples of elements, compounds, and homogeneous and heterogeneous mixtures to the party. Describe physical properties of items in cookbooks for other science classes. • investigate formation of chemical bonds during chemical changes. Create models of atoms and compounds commonly found in foods, showing bonds. Write time-period news articles about discovery of atoms and subatomic particles. <p>Technology suggestion: See http://www.shcf.ac.uk/chemistry/web-elements/index-fr.html.</p> <ul style="list-style-type: none"> • design and conduct investigations to determine pH of foods. Complete taste analysis of foods with different pH values and compare results of taste tests with peers. Create visual displays of foods with different pHs. Predict pH and describe properties of acids and bases of other foods. • design and conduct experiments to determine effects of cooking on pH of foods. Investigate how pH level of food influences food preservation techniques (e.g., canning, drying, freezing, pickling). Create multimedia presentations depicting optimum preservation techniques. 	

High School Science
Nutritional and Food Science

- | | |
|---|--|
| <ul style="list-style-type: none">• research causes and effects of abnormal levels of blood pH and tests used to determine blood pH. Discuss research on blood pH. Participate in discussions with dieticians to determine how foods affect blood pH. Extend activity to investigate effects of foods on blood sugar level. Interview people who must control sugar level in their diets. | |
|---|--|

**High School Science
Nutritional and Food Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>How are nutrients used by the body?</p>	<p>Students will Program of Studies Life Science</p> <ul style="list-style-type: none"> • investigate the cycle of atoms and molecules within the biosphere. • recognize that living systems require energy. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use equipment, tools, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • examine the interaction between science and technology. • explore the impact of science on personal and community health. • analyze how science and technology are necessary for solving issues. • use science to investigate hazards. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. • analyze the role science plays in every day life and compare different careers in science. <p>Nutritional Science Content Chart</p> <ul style="list-style-type: none"> • apply math, science and communication skills within technical content. • identify properties and

High School Science
Nutritional and Food Science

		<p>composition of lipids, carbohydrates, proteins, vitamins, and minerals and how the body uses each.</p> <ul style="list-style-type: none">• determine function of water in the human body and food preparation.
--	--	---

High School Science

Nutritional and Food Science

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> investigate nutrients (e.g., water, carbohydrates, lipids (fats), protein, vitamins) essential to sustaining life. Analyze food labels from common foods to determine nutrient content. Interview medical technologists to determine ways nutrients are measured in blood (e.g., normal ranges versus abnormal ranges). Visit local hospitals to explore ways nutritionists use diet to treat disease and maintain health. Compare current dietary recommendations to past recommendations. Develop informational brochures explaining how proper diets are essential for maintaining health. Distribute brochures through drugstores and hospitals (<i>WP-Transactive</i>). See <i>Diet and Nutrition Activities</i> activities <ul style="list-style-type: none"> Food Guide Pyramid U.S. RDA Information Sheet Put the Label on the Table Label Able Understanding Food Labels See <i>Food Science Safety and Nutrition</i> activity <ul style="list-style-type: none"> Identifying Basic Components of Food research community health problems associated with lack of clean water. Visit local water treatment plants to observe purification processes. Make small-scale models of water purification systems. Design and conduct investigations using common materials (e.g., charcoal) to purify water. Record data and findings. Write research articles for scientific journals outlining experimental procedures for purification experiments. Share experimental design with students in other schools. <p>Technology suggestions: Use CD-ROMs, digital cameras, computers, laser disks, video, and audio to create multimedia presentations. Share information via e-mail, Internet, or Kentucky's TeleLinking Network (KTLN).</p> <ul style="list-style-type: none"> examine how carbohydrates (e.g., monosaccharides, disaccharides, polysaccharides) are used by the body. Taste test differences between natural sugars and artificial sweeteners. Describe diabetic (e.g., juvenile, mellitus) metabolism of carbohydrates. Develop one-day, balanced meal plans suitable for diabetics. Test for 	

High School Science
Nutritional and Food Science

presence of carbohydrates (e.g., simple, complex) in foods. Discuss importance of carbohydrate loading prior to athletic events with athletic trainers. See <i>Food Science Safety and Nutrition</i> activities Structure of Carbohydrates Questions About Sugar and Sugar Labeling The Diet's Effect on Daily Activities	
--	--

**High School Science
Nutritional and Food Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>How are nutrients used by the body?</p>	<p>Students will Program of Studies Life Science</p> <ul style="list-style-type: none"> • investigate the cycle of atoms and molecules within the biosphere. • recognize that living systems require energy. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use equipment, tools, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • examine the interaction between science and technology. • explore the impact of science on personal and community health. • analyze how science and technology are necessary for solving issues. • use science to investigate hazards. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. • analyze the role science plays in every day life and compare different careers in science. <p>Nutritional Science Content Chart</p> <ul style="list-style-type: none"> • apply math, science and communication skills within technical content. • identify properties and

High School Science
Nutritional and Food Science

		<p>composition of lipids, carbohydrates, proteins, vitamins, and minerals and how the body uses each.</p> <ul style="list-style-type: none">• determine function of water in the human body and food preparation.
--	--	---

**High School Science
Nutritional and Food Science**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> investigate roles of lipids in the body. Identify two types of lipids (e.g., saturated, nonsaturated) in foods and the body. Test for presence of lipids (fats) in foods. Visit fast food restaurants and analyze fat content of foods using nutritional literature published by restaurant. Compare percentage of fat in fast foods with American Heart Association's recommendation for fat. Analyze data and create graphs of findings, share with class. Examine connections between saturated fat, cholesterol, and heart disease. Interview cardiologists to identify causes and effects of heart disease (e.g., arteriosclerosis, atherosclerosis, atheros). Test fat content of different types of hamburger (e.g., 30% fat, 20% fat, 10% fat) from supermarkets, using solvents to remove fat from meat. Compare fat content to that listed on label. Prepare test tube displays showing percentages of fat content in foods. Develop menus using heart-healthy foods. <p><i>Technology suggestions: Use CD-ROMs, digital cameras, computers, laser disks, video, and audio to create multimedia presentations. Use integrated software package to create graphs.</i></p> <ul style="list-style-type: none"> investigate roles of protein (e.g., complete, incomplete) in the body. Create diets that are nutritionally sound and use complete and incomplete proteins. Calculate number of calories from protein in diet. Present results of protein diets using multimedia sources. Compare vegetarian and nonvegetarian diets (e.g., lactovegetarian, pure vegetarian, ovo-lacto vegetarian diet). Plan vegetarian diets that provide adequate protein. Analyze case studies to determine if Recommended Dietary/Daily Allowances (RDA) of protein are met. See <i>Nutrition Curriculum Activities Kit - Level 2</i> activities <ul style="list-style-type: none"> The Vegetarian Diet Complimentary Protein Relationships Complementing Your Proteins <p>See <i>Nutrition Curriculum Activities Kit - Level 1</i> activities</p> <ul style="list-style-type: none"> Nutrition Super Sleuth The Egyptian Connection 	

High School Science
Nutritional and Food Science

Lost In Space See <i>Nutrition Curriculum Activities Kit - Level 1</i> activity All About Energy-yielding Nutrients: Protein	
--	--

**High School Science
Nutritional and Food Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p>Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>How are nutrients used by the body?</p>	<p>Students will Program of Studies Life Science</p> <ul style="list-style-type: none"> • investigate the cycle of atoms and molecules within the biosphere. • recognize that living systems require energy. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use equipment, tools, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • examine the interaction between science and technology. • explore the impact of science on personal and community health. • analyze how science and technology are necessary for solving issues. • use science to investigate hazards. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. • analyze the role science plays in every day life and compare different careers in science. <p>Nutritional Science Content Chart</p> <ul style="list-style-type: none"> • apply math, science and communication skills within technical content. • identify properties and

High School Science
Nutritional and Food Science

		<p>composition of lipids, carbohydrates, proteins, vitamins, and minerals and how the body uses each.</p> <ul style="list-style-type: none">• determine function of water in the human body and food preparation.
--	--	---

High School Science
Nutritional and Food Science

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> investigate role of vitamins (e.g., fat soluble, water soluble) and minerals (e.g., macro, trace) in the body. Design and conduct investigations to distinguish between fat-soluble and water-soluble vitamins. Interview local pharmacists about vitamin and mineral supplements and outline major points of presentation, including benefits and hazards of using supplements. Visit pharmacy and compare U.S. Pharmacopoeia (USP) standards of different brands of multivitamins and cost of brands. Use integrated software package to analyze data and create bar graphs of USP standards of different brands. Research diseases (e.g., pellagra, beri beri, kwashiorkor, scurvy, rickets, night blindness, anemia) caused by lack of vitamins and minerals. Videotape oral presentations to share with other classes. See <i>Nutrition Curriculum Activities Kit - Level 1</i> activity <p style="padding-left: 40px;">All About Vitamins, Minerals, and Water See <i>Nutrition Curriculum Activities Kit - Level 1</i> activities</p> <p style="padding-left: 40px;">The Case of the Volunteer Victims The Case of the Wobbling Hens</p> <p><i>Technology suggestion:</i> Use camcorders to videotape presentations.</p> <ul style="list-style-type: none"> determine effects of exercise on loss or maintenance of weight. Predict future weight gain or loss if eating and exercise habits remain constant. Critique various exercise videotapes (e.g., “Sweatin’ to the Oldies”) to determine which burns the most calories. Research exercise programs offered to the public. Analyze fad diets (e.g., grapefruit diet, protein supplement drinks, fat-burner pills) for nutritional value. Investigate their relationships to eating disorders (e.g., anorexia nervosa, bulimia) and evaluate for safety. Discuss problems associated with eating disorders. Watch videos about eating disorders. Debate positive and negative effects media has on body image. Conduct school surveys to determine number of students who have dieted and types of diets used. Write articles for school newspapers encouraging positive weight control programs (<i>WP - Transactive</i>). See <i>Diet and Nutrition Activities</i> activity <p style="padding-left: 40px;">Diet Spy</p>	

**High School Science
Nutritional and Food Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>How is food energy used and stored in the body?</p>	<p>Students will Program of Studies Physical Science</p> <ul style="list-style-type: none"> • investigate chemical reactions and energy. • examine the transfer of electrons or hydrogen ions between ions, molecules, or atoms. <p>Life Science</p> <ul style="list-style-type: none"> • analyze energy flow through ecosystems. • recognize that living systems require energy. • analyze the flow of matter and energy. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use equipment, tools, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review, analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • use science to analyze the use of natural resources. • examine the interaction between science and technology. • explore the impact of science on personal and community health. • analyze how science and technology are necessary for solving issues. • analyze the role science plays in every day life and compare different careers in science. • recognize that scientific

High School Science
Nutritional and Food Science

		<p>knowledge is subject to change.</p> <p>Nutritional Science Content Chart</p> <ul style="list-style-type: none">• interpret basic science for food science such as composition of matter, atomic structure, chemical formulas and equations, and chemical/physical changes in food.• apply math, science, communication skills within technical content.• identify properties and composition of lipids, carbohydrates, proteins, vitamins, and minerals and how body uses each.• analyze functions of enzymes.• analyze breakdown of food molecules.
--	--	--

High School Science
Nutritional and Food Science

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> examine how food is digested in the body. Draw or make models, labeling organs (e.g., mouth, esophagus, stomach, small intestine, gall bladder, liver, appendix, pancreas, large intestine) that are involved in the digestive process. Interview physicians and discuss disorders of the digestive system. See <i>Diet and Nutrition Activities</i> activities Breakdown As the Stomach Churns Liver, Gallbladder, and Pancreas conduct interviews with family members or friends that have digestion problems (e.g., ulcers, acid reflux). Investigate contents of over-the-counter medications used to treat digestive problems. Design and conduct titrations to determine which over-the-counter remedies (e.g., Tums, Roloids, Mylanta, Pepto-Bismol, Milk of Magnesia, baking soda) decrease pH of stomach acid. Document results of titration experiments and write summaries, defending best medications. design and conduct experiments that compare substances that retard enzymatic browning of fruits (e.g., lemon juice, pectin). Record time-lapse enzymatic browning. Conduct blind taste tests comparing fresh fruit to fruit that has enzymatic browning. Determine effects fruit pH has on rate of enzymatic browning. <p>Technology suggestion: Use CD-ROMs, digital cameras, computers, laser disks, video, and audio to create multimedia presentations.</p> <ul style="list-style-type: none"> record 3-day, food-intake in diary and 24-hour activity records (e.g., sleeping, studying, working, eating, exercising). Calculate basal metabolic rate (BMR), energy need, and energy output for one day. Complete case studies that examine factors (e.g., body size and composition, age, gender, environment, physiological state, personal life-style, pregnancy, infancy) affecting BMR, energy need, and energy output. See <i>Nutrition Curriculum Activities Kit- Level 2</i> activities Metabolism: Balancing Energy Input and Energy Output The Survival Mission 	

High School Science
Nutritional and Food Science

What is the Energy Output? Case #1 What is the Energy Output? Case #2 What is the Energy Output? Case #3 See <i>Diet and Nutrition Activities</i> activity Calories and BMR	
---	--

**High School Science
Nutritional and Food Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>How is food energy used and stored in the body?</p>	<p>Students will Program of Studies Physical Science</p> <ul style="list-style-type: none"> • investigate chemical reactions and energy. • examine the transfer of electrons or hydrogen ions between ions, molecules, or atoms. <p>Life Science</p> <ul style="list-style-type: none"> • analyze energy flow through ecosystems. • recognize that living systems require energy. • analyze the flow of matter and energy. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use equipment, tools, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • use science to analyze the use of natural resources. • examine the interaction between science and technology. • explore the impact of science on personal and community health. • analyze how science and technology are necessary for solving issues. • analyze the role science plays in every day life and compare different careers in science. • recognize that scientific

High School Science
Nutritional and Food Science

		<p>knowledge is subject to change.</p> <p>Nutritional Science Content Chart</p> <ul style="list-style-type: none">• interpret basic science for food science such as composition of matter, atomic structure, chemical formulas and equations, and chemical/physical changes in food.• apply math, science, communication skills within technical content.• identify properties and composition of lipids, carbohydrates, proteins, vitamins, and minerals and how body uses each.• analyze functions of enzymes.• analyze breakdown of food molecules.
--	--	--

High School Science

Nutritional and Food Science

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> investigate foods containing each organic nutrient, describing its importance to the body. Examine importance of inorganic nutrients and their role as part of the diet. Create illustrated essays to explain chemical and physical processes of digestion. investigate how cells store energy and how they use energy to carry out life activities. Research nutritional diets for different ages and activities. Determine total food energy value of selected diets. examine energy sources for living systems. Construct models of energy containing food molecules (e.g., sugars, proteins). Construct models of simple molecules (e.g., CO₂, H₂O) from which food molecules are formed. Display models in classroom. research methods used to determine number of calories in foods. Determine number of calories in walnuts by burning walnuts beneath small beakers filled with water. Compare water temperature before and after burning. Compare number of calories released by lipids, proteins, and carbohydrates. Write informational guides for dieters explaining which type of food provides most calories and why (<i>WP - Transactive</i>). design food chains showing humans' position as primary and secondary consumers. Use food chains to construct food webs. Analyze humans' position in energy transfer. Compare vegetarian and nonvegetarian diets to determine effects of each on environment. 	<p>Mia has limited fine motor abilities, but her cognitive skills are commensurate with same age peers. She will need theraputty, rather than modeling clay, stiffer paper, larger objects. Peer or adult assistance constructing her models will be needed, but she should be allowed to perform construction of models herself. An occupational therapist will consult regarding appropriate types of materials (<i>Types of extensions: time, procedures and routines, resources and materials, level of support</i>).</p>

**High School Science
Nutritional and Food Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>What factors do microorganisms play in food preparation and preservation?</p>	<p>Students will</p> <p>Program of Studies</p> <p>Physical Science</p> <ul style="list-style-type: none"> investigate chemical reactions and energy. examine the transfer of electrons or hydrogen ions between ions, molecules, or atoms. <p>Life Science</p> <ul style="list-style-type: none"> examine diversity and classification. analyze the flow of matter and energy. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> identify and refine questions and identify scientific concepts. use equipment, tools, techniques, technology, and mathematics. design and conduct different kinds of scientific investigations. communicate designs, procedures, and results. review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> examine the interaction between science and technology. explore the impact of science on personal and community health. recognize that scientific knowledge is subject to change. recognize how science influences human population growth. use science to investigate hazards. <p>Nutritional Science Content Chart</p> <ul style="list-style-type: none"> interpret basic science for food science such as composition of matter, atomic structure, chemical formulas and equations, and chemical/physical changes in food. apply math, science and

High School Science
Nutritional and Food Science

		<p>communication skills within technical content.</p> <ul style="list-style-type: none">• analyze roles and interrelationships of microorganisms and food and benefits and disadvantages of microbial action.• investigate uses of food additives.
--	--	---

**High School Science
Nutritional and Food Science**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • examine types of food borne illnesses (e.g., salmonellosis, botulism, campylobacteriosis, listeriosis, shigellosis, staphylococcal food poisoning) and microorganisms (e.g., <i>Salmonella</i>, <i>Clostridium botulinum</i>, <i>Campylobacter jejuni</i>, <i>Listeria monocytogens</i>, <i>Clostridium perfringens</i>, <i>Shigella</i>, <i>Staphylococcus aureus</i>) that cause illnesses. Research microorganisms beneficial to food preparation and preservation. Compare organisms that caused diseases in the past to disease causing organisms of today. Draw or make models of microorganisms that cause food-borne illnesses. Visit toxicology/microbiology labs. Tour food processing plants to observe tests for presence of microorganisms in food samples. Interview health safety inspectors on inspection standards (e.g., Food and Drug Administration (FDA), United States Department of Agriculture (USDA), state and local health agencies) that must be met by all food establishments. Interview school, food services coordinators to determine how safety standards are enforced. Report findings from interviews in school newspapers. Create brochures about food-safety standards and food-borne illnesses. Distribute at local supermarkets (<i>WP-Transactive</i>). See <i>Food Science Safety and Nutrition</i> activities <ul style="list-style-type: none"> Regulations That Protect Our Food Supply Food Products - Who Regulates Them? Safe Handling Beyond the Retail and Wholesale Shelf Bacteriological Examination of Food Equipment and Eating Utensils Bacteria in Milk - A Chemical Analysis The Unwelcomed Dinner Guest - Prevent Food Borne Illness Organisms That Bug You <p>Technology suggestion: Use integrated software packages to develop brochures.</p> <ul style="list-style-type: none"> • investigate food additives. Design and conduct experiments to determine efficacy (e.g., enhance flavor or color, aid processing or preparation, preserve quality, add nutrients) of additives. Research United States Department of Agriculture (USDA) and Food and Drug 	

High School Science
Nutritional and Food Science

Administration (FDA) control over additives manufacturers use, including process followed to be included on FDA's Generally Recognized as Safe (GRAS) list.	
---	--

**High School Science
Nutritional and Food Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>What factors do microorganisms play in food preparation and preservation?</p>	<p>Students will</p> <p>Program of Studies</p> <p>Physical Science</p> <ul style="list-style-type: none"> • investigate chemical reactions and energy. • examine the transfer of electrons or hydrogen ions between ions, molecules, or atoms. <p>Life Science</p> <ul style="list-style-type: none"> • examine diversity and classification. • analyze the flow of matter and energy. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • use equipment, tools, techniques, technology, and mathematics. • design and conduct different kinds of scientific investigations. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • examine the interaction between science and technology. • explore the impact of science on personal and community health. • recognize that scientific knowledge is subject to change. • recognize how science influences human population growth. • use science to investigate hazards. <p>Nutritional Science Content Chart</p> <ul style="list-style-type: none"> • interpret basic science for food science such as composition of matter, atomic structure, chemical formulas and equations, and chemical/physical changes in food. • apply math, science and

High School Science
Nutritional and Food Science

		<p>communication skills within technical content.</p> <ul style="list-style-type: none">• analyze roles and interrelationships of microorganisms and food and benefits and disadvantages of microbial action.• investigate uses of food additives.
--	--	---

**High School Science
Nutritional and Food Science**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> design and conduct skits that demonstrate effects of microorganisms on food. Use microscopes to view different kinds of microorganisms grown on food samples. Sketch microorganisms. Visit dairy processing plants to learn how microorganisms are essential for production of foods. Make yogurt for parents' night. See <i>Food Science Safety and Nutrition</i> activities <ul style="list-style-type: none"> Dairy Products Lab Making Yogurt Subsurface Mold Growth in Foods - Control of Molds in Bread Desirable Microbial Growth in Foods - Yeast Fermentation <p><i>Technology suggestion:</i> Use flex cams or light microscopes to view microorganisms.</p> <ul style="list-style-type: none"> compare methods of food preservation (e.g., canning, dehydration, freezing, irradiation, pickling). Investigate functions of additives (e.g., nutritive, preservative, quality-giving, cosmetic) in foods. Tour supermarkets and determine most common method of food preservation. Conduct taste comparisons of food preserved by different methods and report results to class. Observe cooperative extension agents demonstrating safe food preservation methods. Debate how improved food quality has affected human population growth. See <i>Food Science Safety and Nutrition</i> activities <ul style="list-style-type: none"> Effects of Light on Food Flavor Food Dehydration Frozen Foods Desirable Microbial Growth in Foods - Experimental Modification of Pickle Fermentation <p>See <i>Diet and Nutrition Activities</i> activities <ul style="list-style-type: none"> Food Inspector What Is That Stuff? Additives or Preservatives? <p>See <i>Nutrition Curriculum Activities Kit - Level 2</i> activities <ul style="list-style-type: none"> Chemical You Eat Food Label Tree </p></p>	

High School Science
Nutritional and Food Science

To Add or Not To Add Fortified Foods See <i>Food Science Safety and Nutrition</i> activities Food Safety Risk Assessment - Additives Classes and Function Food Safety Risk Assessment - Nitrites and Nitrates in Meat Food Safety Decisions	
---	--

**High School Science
Nutritional and Food Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Agri-biology Content Chart
Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)	What careers are related to food science?	Students will Program of Studies Applications/Connections <ul style="list-style-type: none"> • analyze the role science plays in everyday life and compare different careers in science. Nutritional Science Content Chart <ul style="list-style-type: none"> • apply math, science and communication skills within technical content. • explore career paths in nutritional science. • integrate activities of FHA as an integral component of course content and leadership development.

**High School Science
Nutritional and Food Science**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none">• investigate careers in food science (e.g., dietitian, nutritionist, bacteriologist, chemist, sensory evaluator) and food industries (e.g., quality assurance, production/operations management, product development, technical sales/service chef, cook, food processing plant employee, butcher, baker). Interview people in food-related careers (e.g., dietitian, cooperative extension agent). Compare different food science occupations with respect to potential income and career advancement. Prepare career day presentations comparing food science programs at post-secondary schools. Shadow chefs in hotels or restaurants. Develop informational articles on careers to distribute through school guidance offices (<i>WP-Transactive</i>). See <i>Food Science, Safety, and Nutrition</i> activity Careers in Food Science - Sensory Evaluation• participate in local, regional, state, and national FHA leadership conferences and competitions.	

Introductory Life Skills

Course Description: This course introduces pre-adolescents to Family and Consumer Sciences through short units of instruction. The units relate to growth and development of the pre-adolescent, clothing needs, consumer skills, goal setting and decision making, nutritional needs, significance of home and interpersonal relationships. Career awareness is part of each unit. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
	Students will <ul style="list-style-type: none"> examine different family structures. identify developmental tasks of pre-adolescence and adolescence. assess personal use of time. predict the employment outlook for a high school dropout. analyze factors that influence clothing choice. design a plan for care and storage of clothing. use sewing machine to construct a textile project. identify sources of teen income. differentiate between wants and needs. apply consumer rights and responsibilities to practical situations. predict ways computers will affect daily and work life in the future. practice steps in setting and achieving goals. examine influences on food habits. plan healthy snacks using foods from the basic food groups. calculate calories needed according to weight. explain the importance of eating breakfast. describe the correct and safe use of kitchen appliances. use rules of sanitation and cleanliness in the kitchen.. use correct methods/techniques in preparing food. identify different types of housing. justify reasons for furniture/accessory placement in a room arrangement. assess personal grooming habits. examine qualities needed to maintain friendship. practice appropriate social skills in a given situation. identify careers in Family and Consumer Sciences utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development. apply math, science and communication skills within technical content. demonstrate employability and social skills relevant to the career cluster.
Connections <ul style="list-style-type: none"> National Standards of Family and Consumer Sciences Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Life Skills

Course Description: This comprehensive course provides an opportunity for acquiring basic life skills and allows students to select specific areas for concentrated study. Emphasis is on work and family, adolescent development, selection and care of clothing, consumer spending, housing choices, challenges of child rearing, and guidance in establishing relationships. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
	Students will
2.29	<ul style="list-style-type: none"> analyze the practical problems faced by families to balance the demands of work and family.
2.29	<ul style="list-style-type: none"> predict the results of accomplishing or failing to accomplish the developmental tasks of adolescence.
2.29	<ul style="list-style-type: none"> identify some positive and negative influences of peers on adolescent behavior.
2.29	<ul style="list-style-type: none"> summarize ways of reducing or preventing teen pregnancy.
2.29	<ul style="list-style-type: none"> practice coordinating clothing and accessories.
2.30	<ul style="list-style-type: none"> plan a personal budget.
1.9	<ul style="list-style-type: none"> calculate sales tax, price per unit, and sale discounts.
1.2, 1.4	<ul style="list-style-type: none"> analyze the results of good/poor study habits.
5.4	<ul style="list-style-type: none"> develop personal short-term and long-term goals.
2.29	<ul style="list-style-type: none"> identify physical, psychological, social and health influences on food choices.
2.31, 3.2	<ul style="list-style-type: none"> analyze the causes and consequences of eating disorders.
2.29	<ul style="list-style-type: none"> evaluate a meal for major nutrients.
2.29	<ul style="list-style-type: none"> plan menus for a day using basic food groups.
2.29	<ul style="list-style-type: none"> prepare a simple meal and practice dining etiquette.
2.36	<ul style="list-style-type: none"> analyze careers in Family and Consumer Sciences.
5.4	<ul style="list-style-type: none"> analyze financial, social, physical and emotional costs of parenthood.
3.5	<ul style="list-style-type: none"> evaluate the consequences of high risk behaviors.
2.32	<ul style="list-style-type: none"> develop a plan to improve social skills.
3.4	<ul style="list-style-type: none"> identify appropriate apparel maintenance.
2.30	<ul style="list-style-type: none"> compare consumer products.
2.36, 2.37	<ul style="list-style-type: none"> utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development.
2.1, 2.8, 4.1	<ul style="list-style-type: none"> apply math, science and communication skills within technical content.
2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relevant to the career cluster.
Connections	
<ul style="list-style-type: none"> National Standards for Family and Consumer Sciences Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Apparel Management

Course Description: This course emphasizes the responsibility of individuals in coordinating, selecting and caring for apparel. Practical problems to be addressed relate to apparel choices, wardrobe planning, budgeting and purchasing and alterations and repair. Careers in textiles and apparel are investigated. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
	Students will <ul style="list-style-type: none"> • identify factors which affect the appropriateness of apparel selection. • recognize influences on apparel choices such as advertising media. • examine changes in the fashion cycle. • illustrate ways apparel can be used for artistic expression. • summarize the relationship of apparel to behavior. • analyze factors that affect wardrobe planning. • analyze colors for given individuals by seasons. • interpret the use that design elements in apparel have on personal appearance. • develop a shopping plan for apparel. • compare the properties of natural and synthetic fibers. • interpret the results of textile experiments on fabrics. • interpret information found on apparel hangtags and labels. • prepare a family budget. • select appropriate apparel for children, the elderly and persons with disabilities. • identify appropriate procedures for care of apparel. • perform basic sewing machine procedures. • perform basic apparel alterations and repairs. • interpret current apparel issues regarding safety. • investigate careers in textiles and apparel. • practice a job interview for a textile and apparel occupation. • utilize activities of the Future Homemakers America student organization as an integral component of course content and leadership development. • apply math, science and communication skills within technical content. • demonstrate employability and social skills relevant to the career cluster.
	Connections <ul style="list-style-type: none"> • National Standards for Family and Consumer Sciences • Secretary's Commission on Achieving Necessary Skills (SCANS)

Career And Family

Course Description: This course is designed to help students realize the level of commitment required to manage career and family. It will assist students in developing the skills needed to resolve family and work issues. The extent to which a career impacts family goals, meets financial goals and reflects personal values will be explored. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
	Students will <ul style="list-style-type: none"> distinguish among family structures. examine the changing roles and responsibilities of the family at each stage of the family life cycle. contrast characteristics of functional and dysfunctional families. evaluate the positive and negative effects technology can have on family strength and stability. examine the effects of poverty on individuals, families and society. contrast common examples of family crises. create written and oral reports of chosen issue affecting families. examine the benefits of government agencies that regulate the workplace. predict how work and family roles are balanced based on values and goals. distinguish between traditional and reciprocal roles employed by families. predict problems unique to single working parents. examine the advantages and disadvantages of a dual-earner family. evaluate personal time and financial management. examine ways to promote quality family time. dramatize an effective family council meeting. interpret the Family and Medical Leave Act. analyze training and education requirements for a chosen career. assess alternatives to full-time employment in a given case study. utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development. apply math, science and communication skills within technical content. demonstrate employability and social skills relevant to the career cluster.
Connections <ul style="list-style-type: none"> National Standards for Family and Consumer Sciences Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Careers In Interiors/Furnishings

Course Description: This course provides opportunities for students to develop career competencies in the interiors and furnishings industry. Importance of the industry, types of occupations and entrepreneurial opportunities are included. Specific information regarding wall coverings, textiles, window treatments, furniture and accessories will to be used to critique and develop clients' plans for interiors and furnishings. Work experience beginning with shadowing will be provided in a variety of work sites. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
	Students will: <ul style="list-style-type: none"> 5.1 • assess the importance of the interiors and furnishings industry in the United States and globally. 2.36 • research the roles and functions of individuals engaged in interiors and furnishings industry. 2.36 • research the entrepreneurial opportunities related to careers in interiors and furnishings. 5.1 • assess the impact of the interiors and furnishings industry on the local and state economy. 2.36 • assess the training and preparation requirements in interiors and furnishings. 2.37 • practice grooming and dress requirements of the interiors and furnishings industry. 5.1 • evaluate product information regarding floor and wall coverings, textiles, window treatments, furniture, and lighting fixtures. 5.1 • demonstrate measuring, estimating, ordering, purchasing and pricing skills for interior furnishings and products. 5.1 • propose various interior furnishings, appliances, and equipment which provide quality choices for clients. 5.2 • create floor plans using technological resources. 2.37 • critique a design plan that addresses client needs, goals and resources. 2.37 • gain work experience in the interiors and furnishings industry beginning with shadowing. 2.36, 2.37 • utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development. 2.1, 2.8, 4.1 • apply math, science and communication skills within technical content. 2.37 • demonstrate employability and social skills relevant to the career cluster.
Connections <ul style="list-style-type: none"> • National Standards for Family and Consumer Sciences • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Child Development Services I

Course Description: This course provides training for entry level positions in day care centers, nurseries, kindergartens, and private homes. Students study careers in child development, child development and guidance, children's health and well being in group care, value of play, teaching strategies and management, and curriculum development. The subject content is reinforced with work experience in a variety of child care establishments. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
	Students will
1.2	<ul style="list-style-type: none"> describe the types of programs for group care of children.
1.2	<ul style="list-style-type: none"> identify the competencies of early childhood workers.
1.2	<ul style="list-style-type: none"> explain the philosophies of leading child development theorists.
5.3	<ul style="list-style-type: none"> outline observation and participation techniques used when working with young children.
2.36	<ul style="list-style-type: none"> determine career opportunities in child care.
6.1	<ul style="list-style-type: none"> analyze the principles of child development.
6.3	<ul style="list-style-type: none"> examine the physical, cognitive, emotional and social development of infants, toddlers and preschool age children.
5.5	<ul style="list-style-type: none"> analyze ways to accommodate special needs of exceptional and disabled children.
6.3	<ul style="list-style-type: none"> identify the types of records and tools to assess children's growth and development.
2.29	<ul style="list-style-type: none"> outline general safety precautions for children in group care.
2.29	<ul style="list-style-type: none"> identify agencies that provide services to children and parents involved in child abuse and neglect.
2.29	<ul style="list-style-type: none"> implement procedures for caring for an ill child.
2.29	<ul style="list-style-type: none"> implement procedures for caring for a child who has had an accident.
2.29	<ul style="list-style-type: none"> acquire CPR and first aid certification.
1.16	<ul style="list-style-type: none"> utilize computer technology in teaching young children.
1.11	<ul style="list-style-type: none"> analyze a daily schedule for infants, toddlers, and preschool children in group care.
5.2, 1.13, 2.3	<ul style="list-style-type: none"> organize art, music, language arts, math and science activities for young children.
2.16, 2.29	<ul style="list-style-type: none"> demonstrate skills in caring for young children in a variety of work sites.
2.36, 2.37	<ul style="list-style-type: none"> utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development.
2.1, 2.8, 4.1	<ul style="list-style-type: none"> apply math, science and communication skills within technical content.
2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relevant to the career cluster.
Connections	
<ul style="list-style-type: none"> National Standards for Family and Consumer Sciences Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Child Development Services II

Course Description: Child Development Services II is a continuation of Child Development Services I and designed for students who wish to train for supervisory level positions or to further their education at the post secondary level in the area of child care and development. Students gain in-depth work experiences in child care establishments. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
	Students will <ul style="list-style-type: none"> describe the physical, emotional, cognitive and social development of infants and toddlers. demonstrate appropriate skills in feeding and dressing infants and toddlers. plan activities that encourage speech development of infants and toddlers. organize stimulating play activities for infants and toddlers. demonstrate written and oral skills in communicating with parents about the infant's day. demonstrate skills in arranging furniture in a child development center for the health, safety and education of young children. perform duties common to child development centers such as recording daily attendance and answering the phone. prepare and serve breakfast, lunch and snacks. identify the need for quality child development centers. identify the legal requirements, tax laws and insurance issues in operating a child development center as a business. identify the steps involved in opening and operating a child development facility. identify the characteristics of quality programs for infants, toddlers and preschool age children. use a filing and bookkeeping system for a child development center. identify community resources available for use by a child development center. demonstrate skills in caring for young children in a variety of worksites. utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development. apply math, science and communication skills within technical content. demonstrate employability and social skills relevant to the career cluster.
Connections <ul style="list-style-type: none"> National Standards for Family and Consumer Sciences Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Child/Human Development

Course Description: This course addresses the practical problems related to understanding the types and stages of human growth and development, recognizing effects of heredity and environment on human growth and development, meeting the needs of exceptional children, promoting optimum growth and development in the infancy, toddler, preschool, middle childhood, adolescent, and adulthood stages. Careers in child/human development are explored. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
1.2, 4.2 1.3, 4.2 2.2 2.2, 3.4, 4.2 2.29, 3.4, 4.2 2.29 5.3 2.2, 2.16, 3.4, 4.2 3.4, 4.2, 5.2 2.2, 2.16, 3.4, 4.2 2.36 2.36, 2.37 2.1, 2.8, 4.1 2.37	Students will <ul style="list-style-type: none"> • explain the types of human growth and development. • recognize the effects of heredity and environment on human growth and development. • describe the stages of human growth and development. • identify factors that promote optimum growth and development in the infancy and toddler stages, including physical growth, social and emotional development and intellectual development. • identify factors that promote optimum growth and development in the preschool stage including social, emotional and intellectual growth. • recommend effective guidance techniques for dealing with misbehavior. • organize play activities for the pre-school child. • identify optimum growth and development in middle childhood including physical, intellectual, social and emotional development. • propose a plan to meet the needs of exceptional children. • characterize optimum growth and development in adolescence and adulthood. • compile information about careers in child/human development. • utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development. • apply math, science and communication skills within technical content. • demonstrate employability and social skills relevant to the career cluster.
Connections <ul style="list-style-type: none"> • National Standards for Family and Consumer Sciences • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Commercial Foods I

Course Description: This course prepares students in career competencies in food production and service for a variety of commercial foods establishments such as schools, hospitals, nursing homes and restaurants. Orientation to the food service industry and development of food preparation skills are reinforced with shadowing and work experience during the latter part of the course. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
5.1, 3.6 2.36 2.36 2.37 2.36 2.37 5.1 2.29 2.29 2.37 2.37 2.37 2.37 2.37 2.37 2.37 2.37 2.37 2.37 1.9 3.1, 3.5 4.2, 4.4, 4.5 2.36, 2.37 2.1, 2.8, 4.1 2.37	Students will <ul style="list-style-type: none"> • assess the importance of the food production and food service technologies in the United States and the world. • research the roles and function of individuals engaged in food production and food service careers. • assess employment opportunities and preparation requirements. • demonstrate written, verbal and non-verbal communication skills. • identify and demonstrate personal characteristics of food service workers. • use accepted industry terminology and technical information. • examine types and uses of cleaning materials and sanitizers. • demonstrate knowledge of factors that contribute to food borne illnesses. • practice food service safety and sanitation procedures. • operate tools and equipment following safety procedures and OSHA requirements. • demonstrate skills in knife, tool and equipment handling. • demonstrate proper weighing and measuring techniques. • apply principles of food preparation to produce a variety of food products and beverages. • demonstrate a variety of cooking methods including baking, grilling, sautéing, frying, deep frying, steaming, boiling, and microwaving. • prepare various fruits, vegetables and starches. • prepare sandwiches. • prepare breakfast foods: meats, eggs, cereals and quick breads. • apply the fundamentals of baking to a variety of products. • demonstrate table setting and food presentation techniques. • practice knowledge and skills in a variety of work sites. • calculate cost per serving of food items. • apply time management skills • plan, prepare and serve a variety of meals and special events. • utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development. • apply math, science and communication skills within technical content. • demonstrate employability and social skills relevant to the career cluster.
Connections <ul style="list-style-type: none"> • National Standards for Family and Consumer Sciences • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Commercial Foods II

Course Description: In this course students resume progress in pursuing competencies in food production and services. Food service management functions are introduced. More in-depth information is provided and higher levels of skills are taught. Time is provided for work experience in a variety food service establishments. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
1.11, 2.37 2.37 2.37 2.37, 4.3, 4.5 2.37 2.29, 2.37 1.16, 2.37 2.37 1.9, 2.37 5.4, 5.1 2.37 2.37 2.37 2.37 2.37 1.9, 2.37 5.1, 2.37 5.1 2.37 2.37 1.9 5.2 2.37 4.2, 4.4, 4.5 3.3, 3.4, 4.2 2.36, 2.37 2.1, 2.8, 4.1 2.37	Students will <ul style="list-style-type: none"> demonstrate written, verbal and non-verbal communications skills. use accepted industry terminology and technical information. practice grooming and dress requirements of the industry. practice customer and interpersonal relations skills. maintain tools and equipment following safety procedures and OSHA requirements. demonstrate food handling and preparation techniques to prevent cross contamination between raw and ready-to-eat foods, between animal or fish sources, and other food products. use computer based menu systems to create menu layout and design. apply menu planning principles to develop and modify menus. calculate performance of menu items. examine the applicability of convenience food items. prepare various meats, seafood and poultry. prepare various stocks, soups, sauces and gravies. demonstrate a variety of cooking methods such as broiling, glazing, stewing, braising, barbecuing and roasting. prepare fancy yeast breads, waffles, popovers, crepes and pastries. prepare canapés and appetizers. apply principles of purchasing and receiving in food service operations. apply procedures involved in managing food service employees. plan and organize operational functions for all duties in the kitchen. practice inventory procedures including first in/first out concept, date markings and specific record keeping. demonstrate use of knowledge and skills in a variety of work settings. apply accounting procedures in planning and forecasting profit and loss. explore entrepreneurial opportunities and develop a marketing plan. demonstrate quality services which exceed the expectations of customers. plan, prepare and serve a variety of meals and special events. demonstrate time management skills. utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development. apply math, science and communication skills within technical content. demonstrate employability and social skills relevant to the career cluster.
Connections <ul style="list-style-type: none"> National Standards for Family and Consumer Sciences Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Consumer Economics

Course Description: This course is designed to assist students in managing limited resources in order to acquire and maintain wants and needs. Practical problems addressed include the role of the consumer, career opportunities in consumerism, financial management, savings and investments, wills and estate planning, use of credit, insurance, health and medical care, and consumer advocacy. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
	Students will <ul style="list-style-type: none"> examine the uniqueness of the American economy. interpret government revenue and spending practices. differentiate among different types of taxes. compute net and gross income. prepare tax return using specified form. prepare a family budget. contrast types of financial institutions. reconcile a bank statement. differentiate among various ways to save and invest money. evaluate sources of consumer information. evaluate types of shopping facilities. analyze factors affecting the price of goods and services. analyze a written warranty. distinguish between useful and persuasive information found in advertising. practice calculating the cost of credit. contrast types of credit plans. analyze the types of bankruptcy. compare the cost of different automobile sizes and features. analyze the kinds of automobile insurance coverage. contrast types of health insurance coverage. analyze reasons for having a will. recognize consumer fraud practices. identify reasons to organize consumer groups. analyze careers in consumerism. utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development. apply math, science and communication skills within technical content. demonstrate employability and social skills relevant to the career cluster.
Connections <ul style="list-style-type: none"> National Standards for Family and Consumer Sciences. Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Culinary Skills

Course Description: This course is designed to provide training for employment in hospitality services in the area of food service. Career decisions and demands on family life are explored as well as skills and concepts related to supportive services such as public relations, food and beverage operations, management techniques and entrepreneurship. Instruction will include on-the-job experiences. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
1.1 1.1 5.4, 2.36 2.17, 2.37, 3.5, 4.5 2.29 1.5, 2.1, 5.1, 1.2, 1.16, 3.6, 4.1, 6.3 2.6, 2.31, 2.33 1.1, 2.10 1.12, 1.16 2.18, 2.23 2.8, 6.2 2.10 2.36 2.10, 2.30, 6.30 5.2, 6.3 2.30, 6.3 2.36, 2.37 2.1, 2.8, 4.1 2.37	Students will <ul style="list-style-type: none"> • assess the impact of the hospitality industry on local and state economies. • research the roles of individuals engaged in hospitality services. • assess employment opportunities and preparation requirements. • demonstrate personal and interpersonal skills that enhance working relationships and obtaining jobs. • analyze the effect that career demands have on family life. • apply critical and creative thinking, logical reasoning and problem solving skills in the field of hospitality services. • demonstrate communications technology required by the industry. • demonstrate safe work habits required by the field. • use nutritional information in preparing and serving food to guests. • demonstrate knowledge of quality customer service. • outline steps in establishing an entrepreneurial business such as catering. • demonstrate knowledge of cost analysis and its relationship to profit. • perform appropriate maintenance procedures. • practice culinary skills in various work sites. • prepare a variety of gourmet foods using appropriate methods and techniques. • practice food presentation techniques. • demonstrate use of equipment, tools and supplies required by the industry. • utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development. • apply math, science and communication skills within technical content. • demonstrate employability and social skills relevant to the career cluster.
Connections <ul style="list-style-type: none"> • National Standards for Family and Consumer Sciences • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Foods

Course Description: This course is designed to assist students in making critical decisions about food which contributes to health and well-being. Laboratory instruction is included as an application process. Practical problems addressed relate to attitudes toward food, nutrition facts, special health concerns and diets, management of food resources, preparation skills and careers in nutrition and food service. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
	Students will <ul style="list-style-type: none"> determine how changes in technology have increased food choices. identify physical, social, cultural and economic influences on food choices. explain how digestion turns food into usable nutrients. examine a meal for nutrient content. propose a balanced meal plan using the Daily Food Guide. develop a plan for weight loss, weight gain or maintenance. inspect food labels for nutrition and food additives. plan a high fiber, low fat, low cholesterol or low sodium diets. recognize the value of following a shopping plan for food. calculate the difference in cost among semi-prepared, fully prepared and home prepared foods. select convenience foods according to time saved, the cost and the quality. determine the correct cooking methods for meat, eggs, milk and cheese, fruits, vegetables and legumes. assemble an attractive fruit or vegetable salad. prepare different types of grain products. bake cookies, cakes and pastries. illustrate table settings for special occasions. identify various types of food presentations. practice using different styles of meal service. practice dining etiquette when eating at a restaurant. demonstrate proper safety, sanitation and storage techniques in handling food. categorize careers in nutrition/food service according to skill required and type of job. utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development. apply math, science and communication skills within technical content. demonstrate employability and social skills relevant to the career cluster.
Connections <ul style="list-style-type: none"> National Standards for Family and Consumer Sciences Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Housing Environments

Course Description: This course enables students to study the practical problems related to acquiring housing, conserving energy, maintaining a home, equipping and furnishing a home, designing/redesigning areas in a home and exploring careers in housing. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
	Students will <ul style="list-style-type: none"> • identify factors that affect housing decisions.
5.1	<ul style="list-style-type: none"> • identify special housing needs of the disabled and the elderly.
4.4, 5.1	<ul style="list-style-type: none"> • propose housing for a specific family based on a description of resources and life situations.
5.1	<ul style="list-style-type: none"> • justify renting, leasing or owning a home.
5.1	<ul style="list-style-type: none"> • compare different types of home mortgages.
2.30	<ul style="list-style-type: none"> • interpret the symbols on a blueprint and floor plan.
5.3	<ul style="list-style-type: none"> • examine the major components of the interior and exterior structure of a home.
5.3	<ul style="list-style-type: none"> • propose ways to increase the heating and cooling efficiency of a home.
5.3	<ul style="list-style-type: none"> • illustrate the use of elements and principles of design in housing.
2.22, 3.4	<ul style="list-style-type: none"> • distinguish among types of floor and wall coverings and window treatments.
5.2	<ul style="list-style-type: none"> • identify the types of window treatments.
5.2	<ul style="list-style-type: none"> • choose color schemes for rooms from paint, wallpaper and fabric samples.
3.4, 5.2	<ul style="list-style-type: none"> • identify furniture construction features which affect quality.
2.30	<ul style="list-style-type: none"> • identify features of textiles which affect quality and appropriateness for household use.
2.30	<ul style="list-style-type: none"> • propose furniture arrangements for the living, sleeping and service areas of a home.
3.4, 5.5	<ul style="list-style-type: none"> • determine guidelines in selecting appropriate lighting for a room.
5.5	<ul style="list-style-type: none"> • select accessories to complement a specific room.
3.4, 5.5	<ul style="list-style-type: none"> • identify features to consider when selecting major appliances and electronics for the home.
2.30	<ul style="list-style-type: none"> • examine educational requirements of various careers related to housing.
2.36	<ul style="list-style-type: none"> • utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development.
2.36, 2.37	<ul style="list-style-type: none"> • apply math, science and communication skills within technical content.
2.1, 2.8, 4.1	<ul style="list-style-type: none"> • demonstrate employability and social skills relevant to the career cluster.
2.37	
Connections <ul style="list-style-type: none"> • National Standards for Family and Consumer Sciences • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Parenting

Course Description: This course is designed to aid students in developing parenting and caregiving skills that can be applied in a variety of situations. Major topics include becoming an informed parent, caring for the newborn, being an effective parent/caregiver, caring for the sick and elderly and exploring career opportunities in caregiving. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
2.29,3.2,4.1 3.2, 4.6, 5.1 3.2, 5.4 2.31 2.31 2.29, 3.2, 3.7 2.29, 3.2, 4.4 2.29, 3.2, 4.1.4.2 3.2, 4.6, 5.3 3.3, 4.6, 5.5 3.2, 4.4, 4.6, 5.3 2.29, 3.2, 3.7 2.29, 3.2, 3.4 2.29, 3.2 2.29, 3.2, 4.4 2.31, 3.2, 4.4 2.31, 3.2, 4.4 2.29, 3.2, 4.4 2.36, 3.4, 3.7, 4.6 2.36, 2.37 2.1, 2.8, 4.1 2.37	Students will <ul style="list-style-type: none"> examine factors to be considered in assessing readiness for parenthood. identify causes of and solutions for infertility. recognize that many hereditary or chromosomal effects can be predicted and prevented by genetic counseling. identify the parts and functions of the male and female reproductive system. describe methods of birth control. identify the early signs of pregnancy and the tests for confirming pregnancy. identify the aspects of adequate prenatal care. compare fetal development during each trimester of pregnancy. analyze factors that contribute to reducing birth defects. recognize the importance of advanced preparation for arrival of a baby. describe the birth process. describe the physical characteristics of the newborn. recognize the various aspects of routine infant care including safety. recognize stages of infant development. analyze responsibilities common to parenting and caregiving roles. recognize signs of illness in a child. determine appropriate treatment of children's accidents or injuries. examine the support systems available for care of the elderly. investigate the specific jobs or careers in the fields of child care/elder care. utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development. apply math, science and communication skills within technical content. demonstrate employability and social skills relevant to the career cluster.
Connections <ul style="list-style-type: none"> National Standards for Family and Consumer Sciences Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Relationships

Course Description: This course assists students to develop self understanding, understand others better, improve interpersonal skills both within and outside the family, be more considerate of other person's needs and property, and maintain mental and emotional wellness. Family Life education comprises a portion of this course, including dating and married relationships. Preparations for and the achievement of a successful marriage are emphasized. Leadership development will be provided through the Future Homemakers of America.

Academic Expectations	Content/Process
<p>2.16, 3.1</p> <p>2.16, 4.4</p> <p>2.16, 4.4</p> <p>2.16, 4.3</p> <p>2.17, 4.5</p> <p>2.32, 3.5</p> <p>2.32, 3.2</p> <p>2.16, 4.3</p> <p>2.16, 4.4</p> <p>2.16, 4.4</p> <p>2.16, 4.6</p> <p>2.16, 3.5</p> <p>2.16, 4.3</p> <p>2.16, 4.4</p> <p>2.16, 4.3</p> <p>2.29, 4.3</p> <p>2.29, 4.3</p> <p>2.29, 4.4</p> <p>2.36</p> <p>2.36</p> <p>2.1, 2.8, 4.1</p> <p>2.37</p>	<p>Students will</p> <ul style="list-style-type: none"> • relate self concept to the fulfillment of one's personal needs. • propose ways to fulfill basic human needs. • illustrate gender roles that promote positive self image. • identify ways of developing positive character traits. • examine the effects of culture, stereotyping and prejudices on relationships. • recommend ways of resolving conflicts. • identify the characteristics of good mental health. • recommend ways to improve intergenerational relationships. • explain the need to respect property rights of others. • demonstrate etiquette skills used as an individual, family member and wage earner. • examine the impact of role models on one's life. • practice using refusal skills to resist peer pressure. • examine one's relationship with friends. • compare the characteristics of an ideal date to those of an ideal mate. • compare the similarities and differences of infatuation, sexual gratification and mature love. • explain how premarital sexual intimacy could adversely affect one's entire life. • describe prevention, treatment and the physical effect of sexually transmitted diseases. • analyze the traits of a long term, successful marriage. • analyze career opportunities concerned with relationships of individual and families. • utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development. • apply math, science and communication skills within technical content. • demonstrate employability and social skills relevant to the career cluster.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • National Standards for Family and Consumer Sciences • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Specialized Services In Hospitality

Course Description: This course is designed to provide training in specialized services within the hospitality field. Job and career opportunities will be explored. Instruction will include skill development and practice. Shadowing and work experiences in a variety of commercial establishments such as hotels and motels will be included. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
1.1, 1.16 2.36, 2.38 1.1, 1.16, 2.36 1.2, 5.1, 3.3, 4.2 1.1, 2.36 2.6, 2.31 1.12, 2.16, 2.17, 4.2 1.2, 1.1, 3.4, 4.3 5.1, 5.4 2.1 2.1, 2.29 5.1, 5.3 1.11 5.5, 5.1 5.2 2.1, 2.8, 4.1 2.37	Students will <ul style="list-style-type: none"> research jobs and careers related to the hospitality industry. identify education and training requirements in specialized services. research duties of specialized services in the hospitality field such as concierge, bellperson, busser, host/hostess. demonstrate strategies and skills in planning and scheduling specialized event activities, (e.g. receptions, wedding, etc.). research jobs and careers related to housekeeping (hospitality/tourism) area. practice use of safe chemicals and procedures in specialized services. examine how various departments in a public establishment, (e.g. hotel, restaurant) maintain a close working relationship. demonstrate acceptable guest relations and service skills. analyze strategies in time management relating to specialized services jobs. participate in work based experiences in hospitality areas. apply sanitation procedures for a clean and safe environment. demonstrate appropriate laundering processes. demonstrate organizing and maintaining an efficient housekeeping operation. demonstrate effective communication skills. develop procedures for handling external and internal emergencies. plan programs for recreation and leisure. apply math, science and communication skills within technical content. demonstrate employability and social skills relevant to the career cluster.
Connections <ul style="list-style-type: none"> National Standards for Family and Consumer Sciences Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Textile Services

Course Description: The course provides opportunities in the construction of apparel and customized furnishings and accessories. Basic construction techniques applicable to apparel and furnishings will be utilized. Entrepreneurial opportunities will be explored. Application of skills will occur in a variety of work sites. Leadership development will be provided through the Future Homemakers of America.	
Academic Expectations	Content/Process
	Students will <ul style="list-style-type: none"> research the skills, training, and entrepreneurial opportunities relating to careers in textiles and apparel.
2.36	<ul style="list-style-type: none"> design and construct textile items for others.
2.37	<ul style="list-style-type: none"> use elements and principles of design in selecting appropriate patterns for textile construction items.
2.23, 6.1	<ul style="list-style-type: none"> demonstrate textile construction techniques appropriate for specified apparel and/or furnishings/accessories.
3.4, 6.2	<ul style="list-style-type: none"> use accepted terminology and technical information in customized textile construction.
1.1	<ul style="list-style-type: none"> recommend appropriate construction techniques for a variety of apparel and/or furnishings/accessories.
2.37, 5.2	<ul style="list-style-type: none"> use safety procedures in operating and caring for conventional and commercial textile construction equipment.
2.37	<ul style="list-style-type: none"> determine yardage and cost of fabric needed for selected pattern.
2.10	<ul style="list-style-type: none"> interpret pattern directions for constructing textile items.
1.2	<ul style="list-style-type: none"> perform pattern layout and cutting for textile items.
2.34	<ul style="list-style-type: none"> assess the impact of the textiles and apparel industry on the economy at local, state, and national levels.
1.1	<ul style="list-style-type: none"> examine manufacturing processes that produce fibers and knit, woven and non-woven textiles.
5.3	<ul style="list-style-type: none"> compare the cost of constructing specialty apparel items to cost of those manufactured.
2.30	<ul style="list-style-type: none"> develop production skills in textile construction of apparel and/or furnishings/accessories.
2.36	<ul style="list-style-type: none"> research the procedures in starting an entrepreneurial business in apparel and/or furnishings/accessories services.
2.36	<ul style="list-style-type: none"> utilize activities of the Future Homemakers of America student organization as an integral component of course content and leadership development.
2.1, 2.8, 4.1	<ul style="list-style-type: none"> apply math, science and communication skills within technical content.
2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relevant to the career cluster.
Connections <ul style="list-style-type: none"> National Standards for Family and Consumer Sciences Secretary's Commission on Achieving Necessary Skills (SCANS) 	

HEALTH SCIENCES

Course Title	Recommended Grade Level				Recommended Course Credit
	9 12	10	11		
*Medical Science		x	x	x	1
*Wellness		x	x	x	1
Introduction to Health Sciences	x	x	x	x	1
Emergency Procedures		x	x	x	--1
Medical Math		x	x	x	--1
Medical Terminology		x	x	x	--
Health Care Core Skills			x	x	1--2
Advanced HCS/Practicum			x	x	1--3

*Interdisciplinary Courses. May be taught for required graduation requirement. See Course Overview and description for details.

Overview of Health Sciences Program

The Health Sciences Program provides the secondary student with orientation, exploration, and preparation into the health care industry. Courses are sequenced to provide continuous student progress toward achievement of the career major goal/s. The integration of mathematics, science, communication and technical knowledge is a vital component of each course offering.

This program assists the student in developing essential cognitive, affective, and psychomotor skills. The program is designed for students who desire entry level training and/or plan to enroll in a post secondary program in one of many occupational areas in the health field. After obtaining a satisfactory performance level in the health care core competencies, the student may obtain work experience in a health related facility.

Secondary Health Sciences programs may find a detailed explanation of the content included in the Implementation Manual, in the Kentucky Tech curriculum.

Program Requirements

The maximum student/teacher ratio for the Health Sciences program with clinical affiliations shall not exceed sixteen (16) to one (1) for Medicaid Nurse Aide training.

The program shall meet the criteria established by state and national approval/accrediting agencies that certify and/or register the graduates of the program. In a Health Sciences program, at least one (1) instructor shall be a registered nurse licensed to practice in the Commonwealth of Kentucky.

A recommended list of equipment and supplies for the program is available upon request. Facility guidelines are also available for implementation of the total program. However, a standard classroom is acceptable for academic courses which do not include a laboratory component. Programs located in the area technology center should follow specific requirements of the Department for Technical Education.

The Health Occupations Students of America (HOSA) organization is an integral part of the Health Sciences program. Students who are enrolled in or who have completed

a course from the Health Sciences curriculum are eligible to become members. Leadership training, community service and the opportunity to apply technical and academic competencies are available to all members. Local chapters affiliate with the state and national organization and students may be eligible to attend state and/or national conventions or conferences.

Work-Based Learning

Work-based learning in the Health Sciences program may include shadowing, clinical experiences, career major practicums, and/or cooperative education. These experiences should be connected to the student's career major in Health and are integrated with the academic curriculum.

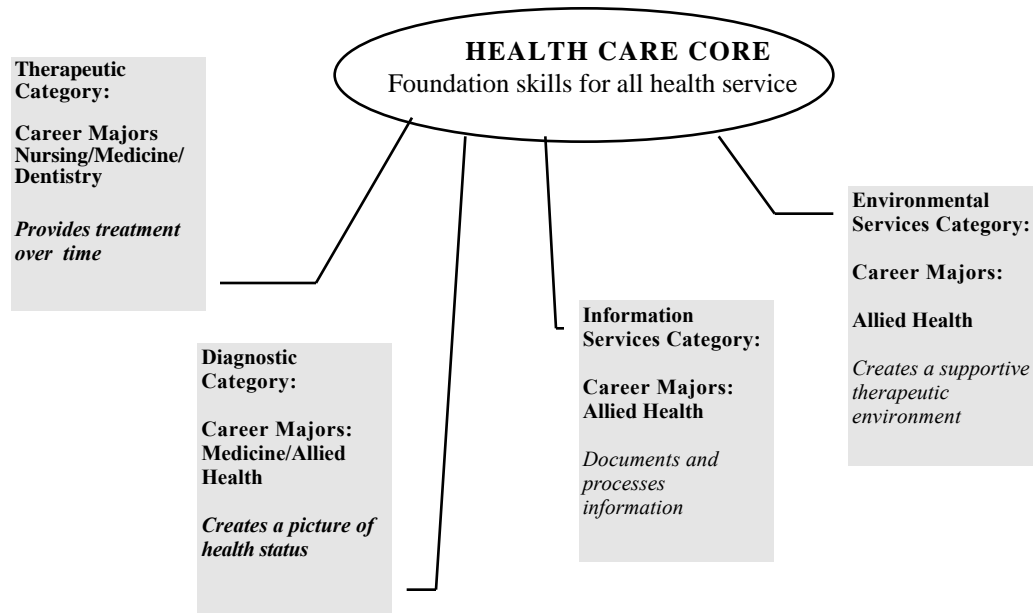
General guidelines for work-based learning are discussed in the Work-Based Learning section of the Vocational Education overview. Additional and specific guidelines relating to the Health Sciences program include:

- Clinical supervision for Medicaid Nurse Aide training must be provided by the health sciences teacher who is licensed as a Registered Nurse in the state;
- All Health Sciences students must be covered by a professional liability insurance plan as required by the affiliating agency;
- All Health Sciences students must complete the Introduction to Health Sciences, Emergency Procedures, and Health Care Core Skills courses prior to a cooperative experience;
- The school shall use the approved standardized agreement with each cooperating agency specifying responsibilities and authority of each party to the agreement;
- A "Statement of Understanding" defining student responsibilities shall be signed by student and parent or guardian prior to assignment in a clinical area, practicum, or cooperative experience.

Career Majors/National Skill Standards

The National Health Care Skills Standards Project has identified standards for a core set of skills essential and appropriate to most workers in health services, and four categories of related occupations and functions. Although the Core and Cluster standards would apply to all levels of health care workers, their primary target is workers at the career-entry and technical levels, to whom they provide a foundation for subsequent career choices. This broad approach avoids duplication of efforts and makes a unique and vital contribution to the initial preparation of health care workers.

Health care core and occupational majors can be seen in the Figure below. The categories are broadly defined according to their functions. Each Career Major may be comprised of more than one occupational title. Students enrolled in a Health Sciences program at a state operated area technology center may also complete requirements for specific DOT's. See the Kentucky Tech curriculum for tasks required.



HEALTH SCIENCES CLUSTER CAREER MAJORS

Therapeutic Category: Nursing, Medicine, Allied Health Majors	Diagnostic Category: Medicine, Allied Health Majors
Recommended Courses	Recommended Courses
Introduction to Health Sciences Medical Math Medical Terminology Medical Science* Wellness** Emergency Procedures Health Science Core Skills Advanced HCS/Practicum	Introduction to Health Sciences Medical Math Medical Terminology Medical Science* Wellness** Emergency Procedures Health Science Core Skills Advanced HCS/Practicum
Elective Courses	Elective Courses
Food Science Child/Human Development Nutritional Science Psychology/Sociology Child Care Chemistry Anatomy & Physiology Other Courses directly related to Career Major	Anatomy & Physiology Psychology/Sociology Child/Human Development Medical Office Chemistry Medical Assisting Other Courses directly related to Career Major
Information Services Category: Allied Health Majors	Environmental Services Category: Allied Health Majors
Recommended Courses	Recommended Courses
Introduction to Health Sciences Medical Terminology Emergency Procedures Health Care Core Skills Advanced HCS/Practicum	Introduction to Health Sciences Medical Terminology Emergency Procedures Health Care Core Skills Advanced HCS/Practicum
Elective Courses	Elective Courses
Sociology Business Courses Economics Medical Secretary Communications Other Courses directly related to Career Major	Food Science Physics Environmental Science Other Courses directly related to Career Major

Note:

- **Three credits must come from recommended courses.**
- **ALL Health Career Major students should enroll in high level mathematics and science courses.**
- ***Meets all Life Science requirements for graduation.**
- ****Meets all Health requirements for graduation.**

MODEL COURSE SEQUENCE

HEALTH SCIENCES CAREER CLUSTER			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies
TECHNICAL CORE			
Introduction to Health Sciences	Medical Terminology	Medical Science	Health Care Core Skills
	Emergency Procedures	Medical Math	
		Wellness	

HEALTH SCIENCES CAREER CLUSTER			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies
TECHNICAL CORE			
Introduction to Health Sciences	Medical Science	Health Care Core Skills	Advanced Health Care Core Skills/Practicum
	Medical Terminology	Medical Math	

High School Science Model I: Medical Science

Course Overview:

This one-credit course uses health occupations as a vehicle to present the life science content outlined in the *Program of Studies*. The course is interdisciplinary in nature and integrates academic expectations and activities with the disciplines of life science, mathematics, health, social studies, language arts, arts and humanities, and vocational studies. During their study of medical science, students will gain an understanding of the normal structure and function of the human body through scientific inquiry. Life science conceptual understandings, applications, and connections make this science relevant to students. Anatomy, physiology, physics, and chemistry concepts are reinforced with real-life analogies and health-related examples are used to illustrate potentially difficult scientific concepts.

Models are organized around guiding questions. Guiding questions (in bold print) direct teachers' choices of activities and are the questions students should be able to answer at the end of the course. Essential questions may be included to further focus student learning.

Pages of models are arranged in pairs. On the left-hand page of each pair are guiding and essential questions along with related academic expectations and correlations to the *Program of Studies* and medical science content chart. Sample activities and sample extensions for diverse learners are found on the right-hand page. While sample activities address *Program of Studies* content or content from elective areas, they are not intended to be comprehensive. Teachers still are responsible for planning instruction to meet the diverse needs of all their students.

Guiding and Essential Questions:

How do cell structure, function, and processes affect living things?

- What disease processes result from changes in my body's cell structure and functions?

What is the molecular basis of heredity?

- How do errors in decoding and transmission of genetic traits affect my health?

What are the processes of biological change?

- How does aging affect the functioning of my body systems?
- How does the function of microorganisms in my world affect me?

How are organisms within ecosystems interdependent?

- What is my role in the cycling of matter and the flow of energy through ecosystems?
- What is my role in an ecosystem?
- How are chemical reactions responsible for the maintenance, growth, and development of my body?

High School Science
Model I: Medical Science

How do body systems work together to keep me healthy and active?

- How does my body maintain homeostasis?

Why do organisms behave the way they do?

- How does my environment affect my behavior?
- What factors determine my marital status and the size of my family?

Why is a knowledge of chemistry and physics necessary in medical careers?

- How will participation in student organizations help prepare me for a career in health care?

**High School Science
Model I: Medical Science**

Academic Expectations	Content/Process
<p>Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>Students will</p> <ul style="list-style-type: none"> • relate importance of chemistry and physics to students studying various body processes and the health professions. • investigate radioisotopes used in treatment and diagnosis of disease. • explain how lungs and kidneys help maintain constant and proper blood pH. • identify and analyze human body systems and how their components work together or affect each other. • compare body fluids and their functions. • describe acid/base balance of human body. • classify major disease processes affecting each body system. • relate medical terminology to body organs and systems. • integrate leadership activities of Health Occupations Students of America (HOSA). • apply mathematics, science, and communications skills to technical content. • relate radioisotopes to the treatment and diagnosis of disease.

**High School Science
Model I: Medical Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Medical Science Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>How do cell structure, function, and processes affect living things?</p> <p>What disease processes result from changes in my body's cell structure and functions?</p>	<p>Students will:</p> <p>Program of Studies</p> <p>Life Science</p> <ul style="list-style-type: none"> • investigate cell structures and their functions. • investigate cell regulation, differentiation, and how the process of photosynthesis provides a vital connection between the Sun and energy needs of living systems. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use equipment, tools, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • examine the interaction between science and technology. • explore the impact of science on personal and community health. • analyze how science and technology are necessary for solving issues. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society.

High School Science
Model I: Medical Science

		Medical Science Content Chart <ul style="list-style-type: none">• identify and analyze human body systems and the ways their components work together or affect each other.• classify major disease processes affecting each body system.• relate medical terminology to body organs and systems.• investigate radioisotopes in the treatment and diagnosis of disease.
--	--	---

**High School Science
Model I: Medical Science**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • create cell models, using nontoxic, biodegradable materials, to illustrate appearance and position of various organelles within cells. Produce keys that include descriptions of organelle functions. • trace path of molecules (e.g., glucose, water) as they arrive at cell membranes and move through cells. Create bulletin boards demonstrating movement. • examine slides of various cell types from multicellular organisms. Discuss relationships between structure of different cell types and their functions. Determine what structure and functions all cells have in common. • compare functions of cell organelles to school or city structures that have similar functions. Create multimedia presentations showing comparisons. • research common diseases (e.g., cancer, influenza, diabetes, cystic fibrosis). Trace disease processes to changes in organ systems or cells. Develop informational brochures that describe diseases and changes they cause at the cellular and organ levels. Distribute brochures through county health departments. • investigate how and when cells differentiate. Read "How Does a Single Cell Become a Whole Body." Trace formation of germ layers and identify organ systems that develop from each layer. Create informational bulletin boards, collages or posters. Examine drugs (e.g., thalidomide, alcohol) and diseases (e.g., rubella) that interfere with differentiation and organogenesis. Explain U.S. governments' recommendation that pregnant women abstain from drinking alcohol. Write articles to encourage pregnant women not to drink. <i>Use this activity to develop possible writing portfolio entries (WP - Transactive).</i> • investigate organ systems (e.g., respiratory, digestive). Work in small groups to create physical models of systems. Research major diseases of each body system and methods used to diagnose and treat diseases (e.g., radioisotopes, surgery, drugs). Analyze how breakdown or disease in one system affects others. 	<p>Bill has difficulty expressing concepts in written form, but works well with manipulatives. Provide Bill various materials to create cell models. Models may be patterned on easily recognizable pictures (<i>Types of extensions: resources and materials, demonstration of knowledge</i>).</p> <p>Alicia has difficulty understanding complex words or directions. Provide her with picture cards to introduce new vocabulary and limit directions to three steps at a time. Alicia will need additional time to complete assignment (<i>Types of extensions: resources and materials, complexity</i>).</p> <p>Cameron, Bart, Amanda and Alicia need opportunities to research and apply advanced level findings to real problems (e.g., they need to practice good listening skills). These students will prepare and participate in formal debates on whether the U.S. government should recommend that pregnant women abstain from drinking alcohol (or using other substances which interfere with differentiation and organogenesis). The teacher may stipulate that students will not know whether they represent affirmative or negative sides until day before debate (<i>Types of extensions: purpose and</i></p>

High School Science
Model I: Medical Science

<i>Technology suggestions: Use Internet to conduct research. Create multimedia presentations for peers describing structure, function, and major diseases of each system.</i>	<i>appropriateness, complexity, time, resources and materials, procedures and routines, demonstration of knowledge).</i>
--	--

**High School Science
Model I: Medical Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Medical Science Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>What is the molecular basis of heredity?</p> <p>How do errors in decoding and transmission of genetic traits affect my health?</p>	<p>Students will:</p> <p>Program of Studies Life Science</p> <ul style="list-style-type: none"> • investigate DNA. • investigate encoding and replication. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use equipment, tools, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • examine the interaction between science and technology. • explore the impact of science on personal and community health. • use science to investigate hazards. • analyze how science and technology are necessary for solving issues. • analyze the role science plays in everyday life and compare different careers in science. • recognize that scientific knowledge is subject to change. • investigate advances that have

High School Science
Model I: Medical Science

		<p>effects on science and society.</p> <p>Medical Science Content Chart</p> <ul style="list-style-type: none">• relate radioisotopes to the treatment and diagnosis of disease.• apply mathematics, science and communication skills to technical content.
--	--	--

**High School Science
Model I: Medical Science**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • create and use models to illustrate DNA structure, replication, and protein synthesis. Investigate mutation by substituting DNA bases. Using models, demonstrate how changes in DNA affect structure of proteins and cause genetic disorders. Develop informational brochures on genetic disorders describing diseases, their inheritance patterns, and community resources for interested families. Distribute brochures through Youth Services Centers (<i>WP - Transactive</i>). • compare observed and expected outcomes of genetic crosses using both Punnett squares and basic probability. Create pedigree charts for observable genetic traits (e.g., tongue rolling, widow's peak, hitchhiker's thumb) or disorders. Include at least three generations. Use information from families, acquaintances, or history (e.g., hemophilia in descendants of Queen Victoria) to create charts. Role-play genetic counselors. Conduct mock counseling sessions for couples with histories of genetic problems. <p>Technology suggestions: <i>Use Internet to conduct research. As alternative to brochures, students could develop multimedia presentations.</i></p> <ul style="list-style-type: none"> • investigate factors (e.g., radiation) that alter DNA. Research effects of radiation on Japanese after the bombing of Hiroshima and Nagasaki. Read <i>Hiroshima</i> and discuss impacts of bombing on individuals and Japanese society. Correspond with survivors and their families about problems they still face. <p>Technology suggestion: <i>Communicate with survivors via e-mail.</i></p> <ul style="list-style-type: none"> • research ways radiation can be used to diagnose and treat diseases. Shadow radiation technologists at local healthcare facilities. Create brochures on medical uses of radiation for distribution at healthcare facilities (<i>WP-Transactive</i>). 	<p>Moses and Molly are two students in the gifted and talented program. They have demonstrated mastery with many basic biology concepts. They should be provided opportunities to shadow genetic counselors (<i>Types of extensions: purpose and appropriateness, motivation</i>).</p> <p>Lum is an avid reader and history enthusiast. He has extensive knowledge of events surrounding WWII in the South Pacific. Allow him to select projects that will extend his knowledge (<i>Types of extensions: participation, pace</i>).</p>

**High School Science
Model I: Medical Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Medical Science Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>What are the processes of biological change?</p> <p>How does aging affect the functioning of my body systems?</p> <p>How does the function of microorganisms in my world affect me?</p>	<p>Students will:</p> <p>Program of Studies Life Science</p> <ul style="list-style-type: none"> • examine how species change over time. • examine diversity and classification. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use tools, equipment, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • examine the interaction between science and technology. • explore the impact of science on personal and community health. • recognize how science influences human population growth. • investigate how science can be used to solve environmental quality problems. • use science to investigate hazards. • analyze how science and technology are necessary for solving issues.

High School Science
Model I: Medical Science

		<ul style="list-style-type: none">• recognize that scientific knowledge is subject to change.• investigate advances that have effects on science and society. Medical Science Content Chart <ul style="list-style-type: none">• relate medical terminology to body organs and systems.
--	--	--

**High School Science
Model I: Medical Science**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • research and summarize theories about origin of life. Survey community members to determine their beliefs. Read articles and literature (e.g., <i>Summer for the Gods</i>) regarding the teaching of evolution. Collect data and create bar graphs, showing differences among groups (e.g., male, female, African Americans, American Indian). Write personal essay describing their own beliefs. Debate issues related to different theories. Write editorials for school newspapers supporting beliefs on the teaching of evolution (<i>WP - Transactive</i>). • research news and magazine articles that document microorganisms' resistance to drugs (e.g., antibiotics). Investigate difficulties researchers have in developing vaccines for diseases (e.g., HIV, malaria, common cold, influenza). Interview doctors and pharmacists on proper use of antibiotics. Create flyers or posters to display in drugstores. • research frequency of genetic disorders (e.g., sickle-cell anemia in African Americans, cystic fibrosis in Caucasians, methemoglobinemia in Eastern Kentuckians) prevalent in different segments of human population. Create graphs comparing county, state, and national data. Identify factors responsible for prevalence of these disorders within different segments of population. Research cause and inheritance patterns of these disorders and medical tests used to identify genetic disorders in newborns. Create public service announcements for local radio or television stations to increase community knowledge of these disorders. Use Internet to conduct research. See The Nation's Prevention Agency Center for Disease Control. http://www.cdc.gov/default.htm See Center for Disease Control and Prevention: Health Information http://www.cdc.gov/diseases/diseases.html • investigate potential causes of changes in human gene pool. Debate how modern technologies (e.g., expensive medical treatments, genetic engineering, genetic testing) 	<p>Jay and Rhonda enjoy research and are interested in genetics. They work better in small groups and require reinforcement. Rules for group conduct and expectations should be posted and reinforcements provided (<i>Types of extensions: motivation, procedures and routines</i>).</p>

High School Science
Model I: Medical Science

<p>and lifestyles affect human gene pool.</p> <ul style="list-style-type: none">• observe microorganisms (e.g. bacteria, dinoflagellates, protozoans). Investigate beneficial and detrimental roles microorganisms play in environment (e.g., fermentation, food spoilage, diseases, decay, bioluminescence, food digestive processes, production of vitamins and antibiotics, nitrogen fixation). Create illustrated children's books describing microorganisms and their roles (<i>WP - Transactive</i>).	<p>Since her accident, Jimmie Dee needs additional time to complete assignments. She will do an in-depth study of one organism, using visual aids and posters with steps outlined (<i>Types of extensions: complexity, time, magnitude, environment</i>).</p>
---	---

**High School Science
Model I: Medical Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Medical Science Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>How are organisms within ecosystems interdependent?</p> <p>What is my role in the cycling of matter and the flow of energy through ecosystems?</p>	<p>Students will:</p> <p>Program of Studies</p> <p>Life Science</p> <ul style="list-style-type: none"> • investigate the cycle of atoms and molecules within the biosphere. • analyze energy flow through ecosystems. • analyze the flow of matter and energy. • investigate behavioral responses. • explore how human activities alter ecosystems. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use tools, equipment, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • examine the interaction between science and technology. • explore the impact of science on personal and community health. • analyze the role science plays in everyday life and compare different careers in science. • investigate advances that have effects on science and society. • use science to analyze the use of natural resources.

**High School Science
Model I: Medical Science**

		Medical Science Content Chart <ul style="list-style-type: none">• relate importance of chemistry and physics to students studying the health professions and to various body processes.
--	--	--

**High School Science
Model I: Medical Science**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> investigate relative abundance of carbon, hydrogen, nitrogen, and oxygen in living things. Identify major compounds found in living things (e.g., CO₂, H₂O, proteins, carbohydrates). Trace movement of these elements between living and nonliving world. Identify critical processes (e.g. respiration, photosynthesis, bacterial role in nitrogen cycle) to each cycle. Assume role of elements or molecules as they cycle through the biosphere. (Element or molecule must pass through at least two organisms.) Develop skits and present to class. <p><i>Technology suggestion: Use camcorders to videotape skits.</i></p> <ul style="list-style-type: none"> design food chains showing humans' position as primary and secondary consumers. Use food chains to construct food webs. Analyze humans' position in energy transfer. Compare vegetarian and non-vegetarian diets to determine effects of each on the environment. Determine ingredients needed to produce a cow, including land, forage, fuel, fertilizers, corn, soybeans, insecticides, herbicides, antibiotics, hormones, and water. Write newspaper editorials explaining the distribution and use of resources among nations of the world (<i>WP - Transactive</i>). research methods used to determine number of calories in foods. Determine number of calories in walnuts by burning the walnuts beneath test tubes filled with water. Compare water temperature before and after burning. Compare number of calories released by lipids, proteins, and carbohydrates. Write informational articles for dieters explaining which type of food provides the most calories and why (<i>WP-Transactive</i>). investigate mechanisms for heat gain and loss in humans. Research malfunctions in human thermoregulatory system (e.g., heat exhaustion, heat stroke) and use of induced hypothermia during surgery. Design activities 	<p>Ann has scored well on a pretest of biology topics. She should be allowed to be a peer tutor for other students in the class and select her own research project. Ann will work with ecologists at the local university research farms to investigate populations of grasses. (<i>Types of extensions: participation, order of learning, level of support</i>).</p>

High School Science
Model I: Medical Science

to compare effects of physical activity and external environmental stimuli (e.g., temperature, layer of clothing) on regulation of body temperature. Create graphs to illustrate results.

Technology suggestions: Use computer-based laboratory equipment to collect data and create graphs.

**High School Science
Model I: Medical Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Medical Science Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>How are organisms within ecosystems interdependent?</p> <p>What is my role in an ecosystem?</p> <p>How are chemical reactions responsible for the maintenance, growth, and development of my body?</p>	<p>Students will:</p> <p>Program of Studies</p> <p>Life Science</p> <ul style="list-style-type: none"> • examine the factors that influence the interactions between organisms. • recognize that living systems require energy. • investigate photosynthesis, cellular respiration, and energy. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use tools, equipment, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • explore the impact of science on personal and community health. • recognize how science influences human population growth. • investigate how science can be used to solve environmental quality problems. • use science to investigate hazards. • analyze how science and technology are necessary for

High School Science
Model I: Medical Science

		<p>solving issues.</p> <p>Medical Science Content Chart</p> <ul style="list-style-type: none">• relate importance of chemistry and physics to students studying various body processes and the health professions.• identify and analyze human body systems and how their components work together or affect each other.
--	--	--

**High School Science
Model I: Medical Science**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • design self-contained ecosystems that support six people. List organisms required to keep ecosystems functioning for three years. Explain role of each organism. Create dioramas of ecosystems. Create and maintain living systems containing at least one producer and one consumer. • compare anaerobic to aerobic respiration. Compare amount of energy produced, chemical reactions, factors affecting rates, location of reactions, and types of cells that carry out each. • explore diversity among microorganisms. Research types of aerobic and anaerobic bacteria (e.g., <i>Staphylococcus aureus</i>, <i>Clostridium botulinum</i>). Discuss potential impacts on human health (e.g., botulism, vitamin K production). Research and categorize antimicrobial drugs. Investigate how antimicrobial drugs disrupt cell processes and/or structures. Create informational brochures explaining how antimicrobial drugs work and distribute at drugstores. • investigate dietary disorders (e.g., anorexia, malnutrition, bulimia) or dietary choices (e.g., vegetarian, diabetic, fad). Identify their effects on cells and organ systems. Write informational brochures for people suffering from these diseases or considering these dietary choices. Interview local healthcare professionals to determine nutritional problems in communities. Create action plans to solve problems and present to health classes. • investigate structure and function of enzymes. Create physical models to illustrate action of enzymes. Investigate how factors, such as temperature, pH, and substrate concentration affect enzyme activity. Use models to illustrate findings. • explore how toxins interfere with chemical reactions in humans. Investigate milk sickness and its historical importance. Read "Land of Milk and Poison" and discuss how medical detectives solved the mystery of milk sickness. Write short stories about how doctors and other healthcare workers solve mysteries of other 	<p>Phyllis does not read at the level of her same-age peers. She should be placed in multi-ability groups for activities that require sustained reading (<i>Type of extensions: purpose and appropriateness, complexity, motivation</i>).</p> <p>The teacher is aware that incidences of bulimia and anorexia are significantly higher among intellectually gifted females than among other females. She has assigned clusters of gifted girls to investigate effects of these disorders on cells and organ systems, including their etiologies and treatment. Their activities include meeting with counselors trained in needs of these students for extended discussions related to setting personal goals and dealing with dilemmas of developing talents versus being popular. They will share their presentation with middle school girls selected by gifted and talented specialists (<i>Types of extensions: purpose and appropriateness, motivation, level of support, resources and materials, environment, demonstration of</i></p>

High School Science
Model I: Medical Science

<p>diseases.</p> <ul style="list-style-type: none">• research process of fermentation. Investigate uses and misuses of fermentation products. Make bread and create children's books explaining the process (<i>WP - Transactive</i>).• create flow charts illustrating path of energy from Sun to humans and from humans to environment. Label charts, identifying major processes involved in each energy transformation.	<p><i>knowledge</i>).</p>
--	---------------------------

**High School Science
Model I: Medical Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Medical Science Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>How do body systems work together to keep me healthy and active?</p> <p>How does my body maintain homeostasis?</p>	<p>Students will:</p> <p>Program of Studies</p> <p>Life Science</p> <ul style="list-style-type: none"> • investigate behavioral responses. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use tools, equipment, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • apply scientific inquiry and conceptual understandings to solving problems of technological design. • examine the interaction between science and technology. • explore the impact of science on personal and community health. • analyze the role science plays in everyday life and compare different careers in science. • recognize that scientific knowledge is subject to change. • investigate advances that have effects on science and society. <p>Medical Science Content Chart</p> <ul style="list-style-type: none"> • explain how lungs and kidneys help maintain constant and proper blood pH. • describe acid/base balance of the

High School Science
Model I: Medical Science

		human body. • compare body fluids and their functions.
--	--	--

**High School Science
Model I: Medical Science**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> investigate fluid and electrolyte balance. Compare percentages and types of body fluids (e.g., intracellular, extracellular, interstitial, plasma). Identify basic concepts of fluid and electrolyte regulation. Investigate hormonal control. Compare symptoms of water excess and water depletion. Investigate water and salt loss in athletes. Compare sports drinks for important electrolytes. Explain why adequate fluid replacement during exercise is important. investigate three processes carried out by kidneys (e.g., filtration, reabsorption, secretion). Investigate effects of alcohol and drugs (e.g., diuretics, caffeine) on excretory system. Research how aging affects kidney functions. Create physical models of mammalian kidney to illustrate functions. Interview dialysis patients about the procedure and how it affects their lives. identify types of acids and bases in the body. Explore buffers and buffer systems (e.g., protein, carbonic acid-bicarbonate, phosphate). Recognize that buffer systems provide only temporary solutions. Investigate how pulmonary mechanisms and renal mechanisms work together to maintain acid-base balance. Investigate disturbances of acid-base balance (e.g., emphysema, renal failure, heart failure, hypertension, neural damage). research how severe diarrhea can affect blood pH, urine pH, and breathing patterns. Create models of human colon to illustrate importance of its structure to control diarrhea. <p><i>Technology suggestions: Use software programs that show three-dimensional views of human anatomy.</i></p>	<p>Frank is interested in the effects of exercise on physiological functions, but he understands information presented in concrete manners using simple languages. Frank should receive extra support in strategies to improve his vocabulary development. As motivating tasks, Frank will work with college trainers to observe highly-skilled athletics (<i>Types of extensions: motivation, resources and materials</i>).</p> <p>Carole, Dianna, and Jamahl have expressed desires to become medical doctors. To expose them to fields of medical research and medical practice, these students will be matched with medical researchers under whose supervision they will learn to use state of the art research instruments and procedures to investigate topics agreed upon by researcher, student, and teacher. They will interview and shadow doctors in selected specialty areas. Each student will prepare poster board reports of their activities and career preparation, including options in selected fields (<i>Types of extensions: purpose and appropriateness, environment, level of support, participation, resources and materials, demonstration of knowledge, motivation</i>).</p>

**High School Science
Model I: Medical Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Medical Science Content Chart
<p>Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>Why do organisms behave the way they do?</p> <p>How does my environment affect my behavior?</p> <p>What factors determine my marital status and the size of my family?</p>	<p>Students will:</p> <p>Program of Studies</p> <p>Life Science</p> <ul style="list-style-type: none"> • investigate behavioral responses. • analyze patterns of behavior. <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use tools, equipment, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • recognize how science influences human population growth. • investigate how science can be used to solve environmental quality problems. <p>Medical Science Content Chart</p> <ul style="list-style-type: none"> • identify and analyze human body systems and how their components work together or affect each other. • relate medical terminology to body organs and systems. • apply mathematics, science, and communication skills to technical content.

**High School Science
Model I: Medical Science**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • research studies done on identical twins separated at birth and raised apart. Compare personalities, mannerisms, habits, and interests of twins. Debate nature-versus-nurture controversy. • investigate and compare innate and learned behaviors (e.g., habituation, imprinting, classical and operant conditioning) in graphic organizers. Create multimedia presentations illustrating examples of each. <p><i>Technology suggestion: Use CD-ROMs, digital cameras, computers, video, and audio to create multimedia presentations.</i></p> <ul style="list-style-type: none"> • compare advantages and disadvantages of sexual reproduction and asexual reproduction. Explain adaptive advantages of hermaphroditism, altruistic behavior, and mating systems (e.g., polygamy, polyandry, monogamy). Investigate evolution of behavioral patterns that (e.g., breeding seasons, mating behaviors) affect reproductive success of populations. • explore how growth of the human population is different from that of other species. Investigate how human activities have affected selected factors (e.g., climate, food shortages, accidental injuries, infectious diseases, predators) that control lives and numbers of other animals. Investigate and graph exponential growth of the human population since 1500s. Investigate warning signals (e.g., ozone depletion, global warming, air and water pollution, loss of biodiversity) that the human population has reached Earth's carrying capacity for the demands of our species. Investigate factors that govern human reproduction (e.g., social mores, traditional beliefs, economics). Debate the question: Have we reached Earth's carrying capacity for the demands of our species? 	

**High School Science
Model I: Medical Science**

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Medical Science Content Chart
<p style="text-align: center;">Scientific Ways of Thinking and Working, Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.1 - 2.6)</p>	<p>Why is a knowledge of chemistry and physics necessary in medical careers?</p> <p>How will participation in student organizations help prepare me for a career in health care?</p>	<p>Students will:</p> <p>Program of Studies</p> <p>Scientific Inquiry</p> <ul style="list-style-type: none"> • identify and refine questions and identify scientific concepts. • design and conduct different kinds of scientific investigations. • use equipment, tools, techniques, technology, and mathematics. • use evidence, logic, and scientific knowledge. • communicate designs, procedures, and results. • review and analyze scientific investigations. <p>Applications/Connections</p> <ul style="list-style-type: none"> • analyze the role science plays in everyday life and compare different careers in science. • investigate advances that have effects on science and society. <p>Medical Science Content Chart</p> <ul style="list-style-type: none"> • relate importance of chemistry and physics to students studying the health professions and to various body processes. • utilize activities of the Health Occupation Students of America (HOSA) student organization as an integral component of course content and leadership development. • apply mathematics, science, and communication skills to technical content.

**High School Science
Model I: Medical Science**

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • develop career notebooks describing educational requirements for health related careers, job opportunities, salaries, opportunities for advancement, and job descriptions. <p><i>Technology suggestion: Use career and desktop publishing software to create notebooks.</i></p> <ul style="list-style-type: none"> • design demonstrations to illustrate chemical basis of clinical procedures and tests (e.g., urinalysis, blood sugar, home pregnancy tests, pH of body fluids). • investigate the relationship between pressure and volume. Demonstrate these relationships using medical equipment (e.g., sphygmomanometer, spirometer). Design models to demonstrate breathing process. Record written explanations of processes in learning logs. • participate in local, regional, state, and national Health Occupations Students of America (HOSA) leadership conferences and competitions. 	<p>Faith learns best when she can discuss ideas with her peers. She will work in cooperative learning groups when participating in state competitions (<i>Types of extensions: level of support</i>).</p>

High School Health Education Wellness

Course Overview:

This one-credit course is designed as an interdisciplinary approach to health education. All content from the high school health and physical education *Program of Studies* is included along with content from vocational education. The main focus of this course is the promotion of a healthy lifestyle through proper nutrition, physical activities, and lifestyle choices. The course model for health education includes core content from practical living and vocational studies content chart. Activities and extensions for diverse learners are designed to enhance the understanding of all students about holistic health and the healthcare industry. Upon completion of this course, students will be able to answer the question, “How does my physical, mental, and social well-being influence the lifestyle choices I make each day?”

Models are organized around guiding questions. Guiding questions direct teachers’ choices of activities and are the questions students should be able to answer at the end of the course. Pages of models are arranged in pairs. On the left-hand page of each pair are guiding questions along with related academic expectations and correlation to the *Program of Studies* and the wellness content chart. Sample activities and sample extensions for diverse learners are found on the right-hand page. While sample activities address *Program of Studies* content or content from elective areas, they are not intended to be comprehensive. Teachers still are responsible for planning instruction to meet the diverse needs of all their students.

Guiding Questions:

- How can I continue to stay healthy?
- How can I develop healthy relationships?
- What do I need to know and be able to do to remain physically healthy and accept responsibility for my own physical well-being?
- What strategies can I use to become and remain mentally and emotionally healthy?
- How can my involvement in organized social and recreational activities influence my physical, mental, and emotional health?
- How can I evaluate and use services and resources available in my community?
- What guidelines and influences can I use to evaluate consumer products and services and make effective decisions?

**High School Health Education
Wellness**

Academic Expectations	Content/Process
Health and Physical Education (2.29 - 2.35)	Students will <ul style="list-style-type: none">• describe components of holistic health.• examine economic, social, cultural, and religious influences on wellness.• debate issues relating to death and dying.• utilize activities of the Health Occupations Students of America (HOSA) student organization as an integral component of course content and leadership development.• apply mathematics, science, and communication skills to technical content.

High School Health Education Wellness

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Wellness Content Chart
<p>Individual Well-Being (2.29)</p> <p>Physical Wellness (2.31)</p> <p>Lifetime Activity (2.35)</p>	<p>How can I continue to stay healthy?</p> <p>How can I develop healthy relationships?</p>	<p>Students will</p> <p>Health Education</p> <ul style="list-style-type: none"> • analyze individual actions and interactions within groups. • explain how the functioning of body systems are interrelated. • explain the process of human growth and development. • identify abstinence as the only sure means of preventing pregnancy and sexually transmitted diseases. <p>Physical Education</p> <ul style="list-style-type: none"> • describe how benefits of exercise are interrelated. • establish, develop, and implement a lifetime personal fitness and activity plan. <p>Wellness Content Chart</p> <ul style="list-style-type: none"> • examine economic, social, cultural, and religious influences on wellness. • describe components of holistic health. • apply mathematics, science, and communication skills to technical content.

**High School Health Education
Wellness**

--	--	--

High School Health Education Wellness

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> investigate factors (e.g., heredity, family structure, peers, media) that influence personal behaviors. Distinguish between positive and negative behaviors. Develop and complete individual and group behavior inventories. Evaluate and use results to improve performance within individual and group settings. Write dialogues analyzing behaviors over a three-month period. examine important relationships (e.g., peers, family, church, work, recreational). Examine roles, including strengths and weaknesses of group members. Discuss rights and responsibilities of each member and impact of individuals on groups. Identify needed adjustments to improve relationships. Role-play suggested interactions. <p>Technology suggestion: <i>Use camcorders to videotape presentations.</i></p> <ul style="list-style-type: none"> research effective interpersonal communication skills in group relationships. Observe diversified age and gender groups in local communities (e.g., workplaces, schools, geriatric facilities). Record and discuss behaviors of group members. Discuss factors that facilitate communication and factors that are barriers. Role-play communications breakdowns and conflict resolutions. Prepare informational brochures for peers that illustrate effective communication skills. <i>Use this activity to develop possible writing portfolio entries (WP - Transactive).</i> Share videos and brochures with parent-teacher organizations, school councils, and local social intervention agencies. <p>Technology suggestions: <i>Use desktop publishing software to create brochures. Use camcorders to film role-playing situations.</i></p> <ul style="list-style-type: none"> determine typical physical growth patterns. Investigate how behavior impacts growth and wellness. Compare physical growth to other areas of growth (e.g., chronological, intellectual, emotional, social, 	<p>Students with difficulty understanding or mastering complex words or directions may have picture cards for new vocabulary (e.g., appropriate interrelationship in picture form) and directions limited to no more than five steps. Students are given longer completion times (<i>Types of extensions: resources and materials, complexity</i>).</p> <p>Lela and Peter have been deaf since birth. They communicate through the use of American Sign Language and an interpreter. Their vocabulary, language development and use of language are below age peers. Using concept maps and caption videos that represent some of the concepts of the unit, the teacher reviews words that she anticipates will be used in group discussions and brainstorming activities (e.g., compromise, pros and cons, conflict resolution, priority, goal setting). As they brainstorm and discuss, Lela and Peter sign their contributions as the interpreter voices their ideas. Each group is to turn in notes of its discussion. Copies are made for Lela and Peter to match written</p>

High School Health Education
Wellness

philosophical). Write personal, reflective essays on ways different individual growth patterns have been impacted by health and wellness (<i>WP - Transactive</i>).	language with oral language (<i>Types of extensions: order of learning, routines and procedures, level of support, participation, purpose and appropriateness</i>).
---	---

High School Health Education Wellness

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Wellness Content Chart
<p>Individual Well-Being (2.29)</p> <p>Physical Wellness (2.31)</p> <p>Lifetime Activity (2.35)</p>	<p>How can I continue to stay healthy?</p> <p>How can I develop healthy relationships?</p>	<p>Students will</p> <p>Health Education</p> <ul style="list-style-type: none"> • analyze individual actions and interactions within groups. • explain how the functioning of body systems are interrelated. • explain the process of human growth and development. • identify abstinence as the only sure means of preventing pregnancy and sexually transmitted diseases. <p>Physical Education</p> <ul style="list-style-type: none"> • describe how benefits of exercise are interrelated. • establish, develop, and implement a lifetime personal fitness and activity plan. <p>Wellness Content Chart</p> <ul style="list-style-type: none"> • examine economic, social, cultural, and religious influences on wellness. • describe the components of holistic health. • apply mathematics, science, and communication skills to technical content.

**High School Health Education
Wellness**

--	--	--

High School Health Education Wellness

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • research life expectancy in Kentucky and U.S. Survey local communities to determine average life expectancy. Compare findings and discuss reasons for likenesses and differences. Design plans and conduct surveys to determine factors (e.g., behaviors, heredity) that contribute to longevity. Discuss quantity versus quality of life. Create histograms comparing data from all fifty states. Desegregate data to show differences among ethnic groups. • investigate factors that contribute to enjoyment of daily activities by older adults. Investigate factors that contribute to long-term enjoyment and active involvement. Investigate interests and activities and record age of first participation. Interview persons enjoying longevity and active involvement. Volunteer at local long-term care facilities. Interview adults about strategies they use for coping with health problems. Write articles on ways to increase enjoyment of activities as one ages. • examine sensory losses that contribute to difficulty in normal functioning. Design and simulate experiments (e.g., glasses with petroleum jelly, cotton in ears, heavy gloves) to experience sensory losses. Write plans to assist persons with sensory losses (<i>WP - Transactive</i>). • investigate role self-esteem plays in individual health and well-being. Design experiments to collect and analyze self-evaluations by peers. Discuss importance of self-esteem in healthy behaviors (e.g., cleanliness, rest, self-image, exercise, sexual behaviors). • investigate structures and functions of organ systems. Compare information in graphic organizers. Create models of each system. Research common diseases of each system and identify successful methods of treatment. Analyze how problems in one system disrupt the functioning of another. Create skits or dialogues depicting interrelationships among organ systems. • research social, emotional, and physical benefits of abstinence. Create public service announcements 	

**High School Health Education
Wellness**

<p>encouraging abstinence among unmarried teens.</p> <ul style="list-style-type: none">• research economic, social, and political issues related to teen pregnancy. Use information to create educational books for younger students about the implications of teen pregnancy.	
--	--

High School Health Education Wellness

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Wellness Content Chart
<p>Individual Well-Being (2.29)</p> <p>Physical Wellness (2.31)</p> <p>Lifetime Activity (2.35)</p>	<p>What do I need to know and be able to do to remain physically healthy and accept responsibility for my own physical well-being?</p>	<p>Students will</p> <p>Health Education</p> <ul style="list-style-type: none"> • develop sound nutritional practices. • evaluate individual wellness. • describe safety prevention, first-aid procedures, and equipment used for common injuries. • explain procedures for handling various emergency situations. • analyze risk-taking choices and actions. • explain disease transmission, prevention, and control. • evaluate personal health practices. • identify abstinence as the only sure means of preventing pregnancy and sexually transmitted diseases. • describe community resources and services. <p>Physical Education</p> <ul style="list-style-type: none"> • describe how benefits of exercise are interrelated. • apply principles of exercise. • apply nutritional concepts in meal planning. • describe benefits of regular participation in physical activities. <p>Wellness Content Chart</p> <ul style="list-style-type: none"> • describe components of holistic health. • examine economic, social, cultural, and religious influences on wellness. • utilize activities of the Health Occupations Students of America (HOSA) student organization as

**High School Health Education
Wellness**

		<p>an integral component of course content and leadership development.</p> <ul style="list-style-type: none">• apply mathematics, science, and communication skills to technical content.
--	--	---

High School Health Education Wellness

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • develop instruments to evaluate lifestyle practices including regular exercise. Develop personal plans to adhere to sound physical fitness programs. • research impact of peer pressure on behavioral choices (e.g., dieting, drug use, alcohol use). Create and perform skits depicting peer pressure on lifestyle choices. • investigate role nutrition plays in individual health and wellness. Interview nutritionists about importance of reading food labels and pros and cons of various diets. Use information to prepare for public service announcements. <p><i>Technology suggestion: Use camcorders to videotape public service announcements.</i></p> <ul style="list-style-type: none"> • research impact of physical activity on individual health and wellness. Interview school athletes and fitness center directors about relationship of exercise to health. Graph, analyze, and present findings at faculty meetings to encourage participation in fitness activities. <p><i>Technology suggestion: Use integrated software packages or graphing software to create databases and graphs.</i></p> <ul style="list-style-type: none"> • investigate emergency plans and strategies for disaster situations. Simulate mock disaster drills with cooperation of local Emergency Management Service (EMS) Team. Develop scoring guides for participants and rescuers. Review results and implement improvement strategies. • research school-safety measures. Investigate number, type and frequency of accidents in schools. Identify causes and discuss ways to reduce number of accidents. Present plans to school councils and student leadership groups. • investigate first-aid items needed in all kits for school and work sites. Research cost and identify areas that need kits. Purchase items, assemble kits, and distribute to schools, libraries, supermarkets, and recreational 	<p>Students in the gifted and talented program will have the opportunity to shadow healthcare professionals. <i>(Types of extensions: purpose and appropriateness, motivation).</i></p> <p>Marshall is a paraplegic due to a driving accident at age 10. He uses a motorized wheelchair. In order to build his upper body strength and to decrease the possibility of atrophy, Marshall will develop a fitness survey and collect information regarding upper body conditioning. He will work with a nondisabled partner to develop the survey and a report that is inclusive of other physical needs of individuals with disabilities. In order to visit a fitness center, he uses his special transportation which includes a lift <i>(Types of extensions: purpose and appropriateness, resources and materials, motivation).</i></p> <p>Students who work better in small groups or require reinforcement may do so. Rules for group conduct and expectations should be posted</p>

**High School Health Education
Wellness**

areas.	<i>(Types of extensions: motivation, procedures and routines).</i>
--------	--

High School Health Education Wellness

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Wellness Content Chart
<p>Individual Well-Being (2.29)</p> <p>Physical Wellness (2.31)</p> <p>Lifetime Activity (2.35)</p>	<p>What do I need to know and be able to do to remain physically healthy and accept responsibility for my own physical well-being?</p>	<p>Students will</p> <p>Health Education</p> <ul style="list-style-type: none"> • develop sound nutritional practices. • evaluate individual wellness. • describe safety prevention, first-aid procedures, and equipment used for common injuries. • explain procedures for handling various emergency situations. • analyze risk-taking choices and actions. • explain disease transmission, prevention, and control. • evaluate personal health practices. • describe community resources and services. <p>Physical Education</p> <ul style="list-style-type: none"> • describe how benefits of exercise are interrelated. • establish, develop, and implement a lifetime personal fitness and activity plan. • describe benefits of regular participation in physical activities. <p>Wellness Content Chart</p> <ul style="list-style-type: none"> • describe components of holistic health. • examine economic, social, cultural, and religious influences on wellness. • utilize activities of the Health Occupations Students of America(HOSA) student organization as an integral component of course content and leadership development. • apply mathematics, science, and

**High School Health Education
Wellness**

		communication skills to technical content.
--	--	--

High School Health Education Wellness

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • compare local, state, and national statistics on communicable diseases. Create histograms comparing data from all fifty states. • research common diseases caused by microorganisms. Discuss and implement strategies to reduce spread of diseases. Produce infomercials to share findings. <p><i>Technology suggestion: Use camcorders to videotape commercials or CD-ROMs, laser disks, video, and audio, and digital cameras to create multimedia presentations.</i></p> <ul style="list-style-type: none"> • collect and culture bacteria from various locations in school buildings. Prepare presentations for all health classes explaining how cultures were grown. • design and conduct experiments to test effectiveness of germ fighting hand soaps. Make recommendations to school-based councils and parent-teacher groups on using most effective germ-fighting hand soaps in local schools. • research educational materials and programs (e.g., American Heart Association, American Diabetes Association, American Cancer Society) that promote wellness and prevention. Compare programs and write articles for local newspapers on available materials and programs (<i>WP - Transactive</i>). 	<p>Students will be placed in multiability groups for activities (e.g., reading groups for students unable to read at the appropriate reading level) to allow all students to be successful (<i>Type of extensions: appropriateness and purpose, complexity, motivation</i>).</p>

High School Health Education Wellness

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Wellness Content Chart
<p>Individual Well-Being (2.29)</p> <p>Physical Wellness (2.31)</p> <p>Lifetime Activity (2.35)</p>	<p>What strategies can I use to become and remain mentally and emotionally healthy?</p>	<p>Students will</p> <p>Health Education</p> <ul style="list-style-type: none"> • determine sources of stress and identify stress related illnesses. • analyze and use stress management strategies. • evaluate conflict resolution and violence prevention strategies. • adopt success-building strategies. • research mental and emotional illnesses. • research substance abuse. • define abuse and determine strategies for prevention. • evaluate health behaviors and attitudes of peers. <p>Wellness Content Chart</p> <ul style="list-style-type: none"> • examine economic, social, cultural, and religious influences on wellness. • debate issues relating to death and dying. • describe components of holistic health. • apply mathematics, science, and communication skills to technical content.

High School Health Education Wellness

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> investigate stress and impact of stress on different individuals. Use results to create lists of recommended stress reduction strategies. Research biofeedback techniques of stress management. Compare to traditional methods. Design questionnaires to survey causes of stress among various groups (e.g., young, old, male, female). Examine current events articles related to stress and stress management. Prepare lists of stress-reducing activities. Compile class recommendations in brochures and distribute to students and teachers. research abusive behaviors (e.g., fighting, drug and alcohol use). Compare assertive and aggressive behaviors. Create skits depicting conflict-resolution strategies. <p><i>Technology suggestion: Use camcorders to videotape skits.</i></p> <ul style="list-style-type: none"> research successful personal and business strategies. Interview successful community members. Share findings in steps-to-success brochures. research various cultural and religious groups and their beliefs concerning death and dying. Interview medical examiners, hospital chaplains, hospice volunteers, and funeral directors. Investigate techniques used to lessen impact of grief. Discuss grieving techniques that assist in maintaining good mental health maintenance. Prepare charts depicting how different groups deal with end of life. investigate local, state, and national programs to assist persons with mental and emotional disorders. Create brochures for Youth Services Centers that summarize information. 	

High School Health Education Wellness

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Wellness Content Chart
<p>Individual Well-Being (2.29)</p> <p>Physical Wellness (2.31)</p> <p>Lifetime Activity (2.35)</p>	<p>What strategies can I use to become and remain mentally and emotionally healthy?</p>	<p>Students will</p> <p>Health Education</p> <ul style="list-style-type: none"> • determine sources of stress and identify stress related illnesses. • analyze and use stress management strategies. • evaluate conflict resolution and violence prevention strategies. • adopt success-building strategies. • research mental and emotional illnesses. • research substance abuse. • define abuse and determine strategies for prevention. • evaluate health behaviors and attitudes of peers. <p>Wellness Content Chart</p> <ul style="list-style-type: none"> • examine economic, social, cultural, and religious influences on wellness. • describe components of holistic health. • apply mathematics, science, and communication skills to technical content.

High School Health Education Wellness

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> research substance abuse programs. Interview alcoholics anonymous participants and halfway house members to discuss recovery programs. Collect data on average time for recovery and factors that affect recovery. Investigate peer pressure in relation to substance abuse. Interview psychologists about addictive behaviors. Create dialogues among friends on substance abuse and effects of negative peer pressure. Role-play methods of dealing with peer pressure. Write books for adolescents on dangers of substance abuse (<i>WP - Transactive</i>). Design public service announcements that include addiction-avoidance strategies. <p><i>Technology suggestions: Use integrated packages or desktop publishing to create books. Use camcorders to videotape role-playing situations and public service announcements.</i></p>	

**High School Health Education
Wellness**

--	--

High School Health Education Wellness

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Wellness Content Chart
<p>Individual Well-Being (2.29)</p> <p>Physical Wellness (2.31)</p> <p>Lifetime Activity (2.35)</p> <p>Psychomotor Development (2.34)</p>	<p>How can my involvement in organized social and recreational activities influence my physical, mental, and emotional health</p>	<p>Students will</p> <p>Health Education</p> <ul style="list-style-type: none"> • analyze individual actions and interactions within groups. • explain how the functioning of body systems are interrelated. <p>Physical Education</p> <ul style="list-style-type: none"> • describe how benefits of exercise are interrelated. • establish, develop , and implement a lifetime personal fitness and activity plan. • apply movement concepts in various games, sports, and rhythmic activities. • refine techniques to achieve consistency in performance of fundamental skills in games and activities. • demonstrate sportsmanship applicable to participants and spectators. • demonstrate principles of motor skill refinement. • analyze specialized movement sequences and patterns to make recommendations for improvement. • develop specialized motor skills for participation in rhythmic movement; individual, dual, and team games. and activities. • analyze object manipulation to make recommendations for improvements. • describe benefits of regular participation in physical activities. • apply strategies for successful

High School Health Education
Wellness

		<p>participation in lifetime activities and sports.</p> <ul style="list-style-type: none">• refine techniques in lifetime activities and sports to enhance performance. <p>Wellness Content Chart</p> <ul style="list-style-type: none">• examine economic, social, cultural, and religious influences on wellness.• describe components of holistic health.
--	--	--

High School Health Education Wellness

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • participate in team and individual sports and activities (e.g., volleyball, softball, basketball, throwing, catching, tennis, badminton, golf) demonstrating correct movement techniques and adherence to rules of play. Analyze movement via videotapes to help improve performance. Work with partners to perfect techniques (e.g., golf swing, catching, throwing). • use elements of dance (e.g., space, time, force, levels, pathways) to develop creative movement sequence. Participate in rhythmic activities and dance demonstrating movement concepts, sequences, and patterns. <p><i>Technology suggestion: Use camcorders to develop videotapes to critique peer movement.</i></p> <ul style="list-style-type: none"> • use Internet to research biomechanics of movement. Identify major muscle groups used. Record use of muscles through classroom movements and activities. Observe muscles used in different activities (e.g., walking, running, golfing, dancing). Choose the use of one muscle to illustrate in posters. • develop dance sequences in pairs and groups, using three culturally different types of music. Demonstrate for class. • investigate what is meant by good sportsmanship. Use graphic organizers to compare sports heroes' actions. Include those that are considered to be examples of good and poor sportsmanship. Create posters on the do's and don'ts of good sportsmanship. Write sports opinion columns for school newspapers (<i>WP-Transactive</i>). Role-play acceptable sportsmanship behaviors of different sports. • plan and implement activity day where teachers and students compete. • examine community activity careers (e.g., YMCA). Prepare consumer guides explaining benefits of these centers and resources they provide. Write letters to community leaders persuading them to fund more 	

High School Health Education
Wellness

<p>centers (<i>WP-Transactive</i>).</p> <ul style="list-style-type: none">• develop and plan community activities (e.g., bowl-a-thon, marathon). Research location, cost, volunteer resources, and safety. Plan for involvement of all age groups. Produce written proposals containing all pertinent information and present to local government for approval <p><i>Technology suggestion:</i> Use multimedia resources to make presentations.</p>	
--	--

High School Health Education Wellness

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Wellness Content Chart
<p>Individual Well-Being (2.29)</p> <p>Physical Wellness (2.31)</p> <p>Lifetime Activity (2.35)</p> <p>Psychomotor Development (2.34)</p>	<p>How can my involvement in organized social and recreational activities influence my physical, mental, and emotional health?</p>	<p>Students will</p> <p>Health Education</p> <ul style="list-style-type: none"> • analyze individual actions and interactions within groups. • explain how the functioning of body systems are interrelated. <p>Physical Education</p> <ul style="list-style-type: none"> • describe how benefits of exercise are interrelated. • establish, develop , and implement a lifetime personal fitness and activity plan. • apply movement concepts in various games, sports, and rhythmic activities. • refine techniques to achieve consistency in performance of fundamental skills in games and activities. • demonstrate sportsmanship applicable to participants and spectators. • demonstrate principles of motor skill refinement. • analyze specialized movement sequences and patterns to make recommendations for improvement. • develop specialized motor skills for participation in rhythmic movement; individual, dual, and team games, and activities. • analyze object manipulation to make recommendations for improvements. • describe benefits of regular participation in physical activities. • apply strategies for successful

High School Health Education
Wellness

		<p>participation in lifetime activities and sports.</p> <ul style="list-style-type: none">• refine techniques in lifetime activities and sports to enhance performance. <p>Wellness Content Chart</p> <ul style="list-style-type: none">• examine economic, social, cultural, and religious influences on wellness.• describe components of holistic health.
--	--	--

High School Health Education Wellness

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • examine studies comparing health of persons who regularly engage in sports related activities to those who live sedentary lifestyles. Compare medical expenditures of classmates who participate in physical activities (e.g., ball, dance, golf, swimming) to non-active individuals. Debate benefits of physical activity. Create presentations for classmates convincing them to participate in sports. • investigate community recreational opportunities (e.g., baseball, golf, swimming, square dancing). Design and conduct surveys to determine community participation (e.g., frequency, age level). Design brochures to explain benefits of participation in recreational activities. • compare training programs of amateur sports figures to those of professional sports figures. Interview professionals to discover how they became successful. Create how-to booklets or articles for amateurs. <p><i>Technology suggestion: Use camcorders to videotape presentations.</i></p>	

High School Health Education Wellness

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Wellness Content Chart
<p>Individual Well-Being (2.29)</p> <p>Physical Wellness (2.31)</p> <p>Lifetime Activity (2.35)</p>	<p>How can I evaluate and use services and resources available in my community?</p>	<p>Students will</p> <p>Health Education</p> <ul style="list-style-type: none"> • describe community resources and services. • analyze community health standards and regulations. • identify ways to protect the environment. <p>Wellness Content Chart</p> <ul style="list-style-type: none"> • examine economic, social, cultural, and religious influences on wellness. • apply mathematics, science, and communication skills to technical content.

**High School Health Education
Wellness**

--	--	--

High School Health Education Wellness

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • compare public and private healthcare facilities, including an analysis of level of care, cost, and services provided. Interview leaders of communities using public and private healthcare services. Determine if needs are met by existing services and facilities. Investigate public healthcare facility guidelines. Create charts outlining standards and regulations for each health care cluster. Develop multimedia presentations for healthcare administrators. <p><i>Technology suggestion: Use camcorders to videotape commercials or CD-ROMs, laser disks, video, and audio, and digital cameras to create multimedia presentations.</i></p> <ul style="list-style-type: none"> • research and develop directories of local and state health care agencies and resources. Work with Youth Services Centers to distribute information to parents. Collaborate with businesses to create presentations of community resources. Share with local magistrates and chamber of commerce or tourism commissions. • investigate local water and sewage treatment plants. Write articles explaining potential health issues related to unsafe water supplies (<i>WP - Transactive</i>). • develop questionnaires concerning volunteerism rates among peers. Write volunteer agencies requesting information about services and guidelines for volunteers. Interview recipients of volunteer help. Write articles for school newspapers encouraging peers to volunteer their services to those in need (<i>WP - Transactive</i>). 	<p>Nathan's transition goals include volunteering after he leaves high school. He recognizes functional words in his environment. He will need supportive assistance for daily activities as an adult. Working with a nondisabled peer, he chooses two volunteer agencies based on his interests (e.g., Humane Society and local hospital). They visit the agencies to observe possible roles that he can perform as a volunteer and take pictures. With assistance from his peer, he prepares a bulletin board. As a part of high school program, he begins volunteering two hours per week (<i>Types of extensions: purpose and appropriateness, complexity, size, environment, level of support, demonstration of knowledge, participation, motivation</i>).</p>

High School Health Education Wellness

Academic Expectations	Guiding Questions	Correlations to the Program of Studies and Wellness Content Chart
<p>Individual Well-Being (2.29)</p> <p>Physical Wellness (2.31)</p> <p>Lifetime Activity (2.35)</p>	<p>What guidelines and influences can I use to evaluate consumer products and services and make effective conscious decisions?</p>	<p>Students will</p> <p>Health Education</p> <ul style="list-style-type: none"> • develop and use strategies for evaluating products and services. • evaluate influences of advertising on consumer choices. • make effective consumer decisions. • apply nutritional concepts in meal planning. <p>Wellness Content Chart</p> <ul style="list-style-type: none"> • examine economic, social, cultural, and religious influences on wellness. • describe components of holistic health. • apply mathematics, science, and communication skills to technical content.

**High School Health Education
Wellness**

--	--	--

High School Health Education Wellness

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> investigate factors affecting consumer decision making. Survey peers to determine highest priority (e.g., cost, packaging, quantity, quality, advertising) when selecting products or services for personal use. Graph and analyze findings. Write articles for consumer newsletters explaining purchasing decisions of youth (<i>WP -Transactive</i>). investigate behaviors that represent conflicting values (e.g., convenience of automobiles and importance of clean air). Develop plans to lessen impact of identified conflicts. analyze nutritional information on food labeling. Collect food product labels. Create spreadsheets to organize data. Analyze and discuss percentages of different nutrients in food items. Develop balanced, low-fat diets and publish in brochures. Distribute at local supermarkets (<i>WP-Transactive</i>). investigate advertising techniques. Collect, compare and analyze various newspaper, magazine, and TV advertisements. Create bulletin boards contrasting positive and negative advertisements. Plan weekend camping trips, create budgets, and apply decision-making process to purchase necessary items. Discuss choices and evaluate decisions. 	<p>Jason is a diabetic with numerous food allergies. He collects and analyzes product labels paying particular attention to the nutritional content and ingredients while comparing to his personal health needs. His brochure focuses on special considerations for individuals like himself. He shares his findings with the local health department's nutritionists and creates a Web site for adolescents with similar health issues and makes it available through the school's Web site (<i>Types of extensions: purpose and appropriateness, complexity, size, demonstration of knowledge, motivation, resources and materials, participation</i>).</p>

Introduction to Health Sciences

Course Description: Introduction to Health Sciences is an orientation and foundation for occupations and functions across the health care cluster. The course includes broad health care core standards which specify the knowledge and skills that the vast majority of health care workers should have. The student will learn about the health care industry, health care economics and the career opportunities available. Leadership development, employability skills and medical terminology will be integrated throughout the course. This introductory course may be a prerequisite for additional courses in the Health Sciences Program. All core content for Vocational Studies is included in this course.

Academic Expectations	Content/Process
<div>2.20</div> <div>1.1</div> <div>2.16</div> <div>2.14; 2.17</div> <div>2.14</div> <div>2.20</div> <div>2.33</div> <div>2.30</div> <div>1.16</div> <div>2.36</div> <div>2.38</div> <div>2.16</div> <div>3.5</div> <div>2.14</div> <div>4.2</div> <div>6.1</div> <div>2.37</div>	<p>Students will</p> <ul style="list-style-type: none"> • examine factors that influence the health care industry. • research the organizational structure of various health care facilities. • identify how key systems affect services performed and the quality of health care. • describe ethical practices with respect to cultural, social and ethnic differences within the health care environment. • recognize legal responsibilities, limitations and the implications of actions within the health care delivery system. • investigate medial/health milestones that have led to advances in health care. • evaluate available community health systems, services and resources available in the community and state. • evaluate consumer products and services and make effective consumer decisions. • use appropriate technology to input, store and retrieve information. • use strategies for choosing and preparing for a career in the health care industry. • demonstrate skills (e.g. interviewing, writing resumes, completing applications) that are needed to be accepted into college or other post secondary training or to get a job. • explore Maslow's Hierarchy of Needs. • utilize effective self-management skills. • recommend an acceptable Code of Conduct for a health care worker. • utilize activities of Health Occupations Students of America (HOSA) as an integral component of course content and leadership development. • apply mathematics, science, and communication skills within the health sciences content. • demonstrate the employability and social skills relevant to health careers.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • National Health Care Core Standards • Secretary's Commission on Achieving Necessary Standards (SCANS) • Kentucky Tech Curriculum 	

Medical Math

Course Description: This course is designed to review, utilize and build on mathematical skills commonly used in all health occupations. Students will use applied techniques to perform mathematical operations such as computations, ratio and proportion, weights and measurements and conversions. Skills in problem-solving and critical thinking will be enhanced since real world situations are an integral part of the course methodology. This course is strongly recommended for all Health Career majors. Completion of a Mathematics course and/or Algebra I is suggested prior to enrolling in this course.	
Academic Expectations	Content/Process
2.7; 2.8 2.8 1.9; 6.1 2.10 2.10 1.9 1.10 1.16 2.8 2.7 2.7 2.8 2.10 2.7 1.9 2.8 2.8 2.10 4.2 6.1 2.37	Students will <ul style="list-style-type: none"> perform fundamental arithmetic operations on whole numbers, fractions, decimals and percents for accuracy and speed. understand mathematical procedures and use them appropriately. accurately calculate oral and parenteral dosages. relate mathematics to activities in the health sciences and discuss the importance of a thorough understanding of mathematics to a successful career in the health professions. analyze and compare over-the-counter medications as to the number of doses and unit price. observe and record the ways measurement is used in a medical laboratory. use various types of graphs to interpret and analyze information. organize information using classification rules and systems (e.g. symbols, abbreviations, Roman numerals). use appropriate technology to collect, organize, and communicate information and ideas. estimate values for operations involving decimals and use a calculator to find the results. represent fractions as ratios in simplest form. evaluate numbers having positive and negative exponents. represent numbers in scientific notation. demonstrate knowledge of measurement systems and conversion principles. perform addition, subtraction, multiplication, and division of signed numbers. relate words to algebraic expressions. set up and solve proportions. find the mean, median, and mode for a group of values. use the 24 hour clock (military time). utilize activities of the Health Occupations Students of America (HOSA) as an integral component of course content and leadership development. apply science and communication skills within the health sciences content. demonstrate the employability and social skills relevant to health careers.
Connections <ul style="list-style-type: none"> National Health Care Skill Standards/ Kentucky Tech Curriculum Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Emergency Procedures

Course Description: This course will focus on potential emergency situations. It is designed to promote an understanding of standard precautions necessary for personal and professional health maintenance and infection control. Upon successful completion of the course, the student will demonstrate the necessary skills in First Aid and Cardiopulmonary Resuscitation (CPR) and will be given the opportunity to take the completion examination as outlined by the sponsoring agency.	
Academic Expectations	Content/Process
6.2 6.2 2.14 6.2 5.2 5.2 5.1 1.1; 1.12 5.3 5.3 5.2 5.3 5.3 5.2 5.1 1.11 1.11 2.33; 2.18 2.33 5.1 6.2 1.16 4.2 6.1 2.37	Students will <ul style="list-style-type: none"> • demonstrate proper emergency rescue and transport procedures. • dramatize a medical disaster. • investigate legal and ethical issues related to emergency procedures. • demonstrate use of standard precautions. • design an evacuation plan for a facility housing more than 25 persons. • compose an emergency plan for the home. • assess the physical and mental status of the client. • research and debate issues concerning organ donation. • collect data related to the mortality rate of the local community. • compare standards for CPR used by various agencies. • develop a plan for an emergency shelter in the community. • compare and contrast emergency procedures used in the media to reality. • inventory medical supplies in the home. • create a checklist for emergency supplies for the home and auto. • inspect the school and/or home for potential safety hazards. • produce a letter to the site based council regarding the safety inspection. • design a poster or chart with details of the school tornado and fire plans. • investigate the cost of life support systems and the economic impact on health care costs. • evaluate services and resources available in the community. • identify the client using appropriate strategies. • demonstrate cardiopulmonary resuscitation and first aid techniques. • use technology to collect, organize and communicate information and ideas. • utilize activities of the Health Occupations Students of America (HOSA) as an integral component of course content and leadership development. • apply mathematics, science, and communications skills within the health sciences content. • demonstrate employability and social skills relevant to careers.
Connections <ul style="list-style-type: none"> • American Heart Association • American Red Cross • National Health Care Skills Standards • Occupational Safety and Health Administration Standards 	

- Secretary's Commission on Achieving Necessary Skills (SCANS)
- Kentucky Tech Curriculum

Medical Terminology

Course Description: This course is an intense study of the medical language used in all health career major areas. Students will learn correct pronunciation, spelling and application rules. Medical Terminology includes writing exercises, research and connections to medical science. This course may be taught concurrently or as a prerequisite to Medical Science.	
Academic Expectations	Content/Process
	Students will <ul style="list-style-type: none"> • arrange word roots, prefixes, and suffixes to form medical terms. • categorize word parts by body systems. • interpret terms relating to all major body systems. • correlate origin of terms to other languages. • identify medical acronyms, homonyms and eponyms. • recognize plural forms of medical terms. • demonstrate the use of a medical dictionary. • identify and use common medical abbreviations. • design medical terminology flash cards with terms and illustrations. • compose a short story using medical terms. • relate medical terms to normal anatomy, growth and development, diagnostic procedures, pharmacology, surgery, mental health and medical specialties. • compare the use of medical terms in the media and real-life situations. • design a game using medical terms. • use technology to investigate use of medical terms and methods to learn. • pronounce medical terms. • translate physician's orders using accurate medical terminology. • utilize activities of the Health Occupations Students of America (HOSA) as an integral component of course content and leadership development. • apply mathematics, science and communications skills within the health sciences content. • demonstrate employability and social skills relevant to health careers.
6.3 1.10 6.1 2.27 6.1 6.1 1.1 6.1 1.13 5.2 6.1 2.21 1.13; 5.2 1.16 1.12 6.1 4.2 6.1 2.37	
Connections <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Health Care Skills Standards • Kentucky Tech Curriculum 	

Health Care Core Skills

Course Description: Health Care Core Skills is designed to provide knowledge, concepts and psychomotor skills necessary for gainful employment as an entry-level health care worker. Classroom instruction and educational objectives are combined with learning experiences and observations in a career major Practicum. This work-site experience allows students to develop proficiency in skills and does not include monetary compensation. Students should complete Introduction to Health Sciences and Emergency Procedures prior to enrolling in this course.	
Academic Expectations	Content/Process
1.3; 1.4 4.2 2.37 2.14 2.14 2.16; 2.18 2.31 2.14; 2.37 2.15 2.37; 6.2 1.1; 2.20 1.11 1.16 2.36 4.2 6.1 2.37	Students will <ul style="list-style-type: none"> • develop and practice effective oral and written communication skills. • understand the roles and responsibilities of individual members of the health care team. • prepare supplies, equipment and client for procedures according to facility protocol. • use accepted ethical practices with respect to cultural, social and ethnic differences. • discuss legal responsibilities, limitations, and the implications of actions within the health care delivery setting. • examine how key systems relate to the services performed and affect the quality of client care. • prevent injury or illness through safe work practices and following health and safety policies and procedures. • demonstrate professional etiquette and responsibility. • demonstrate knowledge of applicable laws, statues or regulations in the career major area. • demonstrate performance skills as outlined on approved career major task list. • assess client health status according to respective professional standards and report results to treatment team. • research the history and organizational structure of the career major area. • demonstrate the effective use of time management skills. • use various types of technology to collect, organize and communicate information and ideas. • develop a plan to maintain and upgrade skills. • utilize activities of the Health Occupations Students of America (HOSA) as an integral component of course content and leadership development. • apply mathematics, science and communication skills to health sciences knowledge. • demonstrate employability and social skills relevant to health careers.
Connections <ul style="list-style-type: none"> • Kentucky Medicaid Nurse Aid Training Standards/Kentucky Tech Curriculum • National Health Care Skill Standards • Omnibus Budget Reconciliation Act (OBRA) Guidelines • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Advanced Health Care Skills/Practicum

Course Description: Advanced Health Care Skills is an expanded practical application of health care skills, review of academic skills and additional enrichment units of study. Following successful completion of the Health Care Core Skills, the student will select a career major for concentrated study and skill development. The course includes a culminating project based on the career major. A work-based practicum is designed to compliment the classroom instruction. Students must complete the Introduction to Health Sciences and Health Care Core Skills courses to enroll in this course. Emergency Procedures is strongly recommended. Students who choose to complete the Medicaid Nurse Aide Career Major component may qualify for the state register.	
Academic Expectations	Content/Process
6.1 2.36 6.1 6.2 2.37 2.37 2.37 1.1 2.37 4.1 5.1 1.2 1.2; 1.12 2.7 1.11 2.36 2.38 1.11; 1.12 4.2 6.1 2.37	Students will <ul style="list-style-type: none"> • complete specific job tasks related to career major. • complete a personal profile. • integrate knowledge from classroom instruction with work experience. • observe health care facilities and equipment use unavailable in the classroom. • design a plan to increase employability after graduation. • develop a financial plan to allocate funds for personal, education and/or professional expenses. • complete a training plan. • investigate employment opportunities and responsibilities of health care workers. • develop work habits necessary for individual maturity and job competence. • interact successfully with co-workers, supervisors and classmates. • create a plan for productive time management. • interpret instructional manuals. • discuss articles from professional journals. • develop basic computational skills. • create an acceptable work-related report. • formulate a plan for post-secondary education. • demonstrate workplace readiness skills. • prepare a written and oral culminating report based on experiences in health sciences program. • utilize activities of the Health Occupations Students of America (HOSA) as an integral component of course content and leadership development. • apply mathematics, science, and communication skills within the health sciences content. • demonstrate employability and social skills relevant to health careers.
Connections <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Health Care Skills Standard • Kentucky Medicaid Nurse Aide Training Standards 	

- Kentucky Tech Curriculum

INDUSTRIAL TECHNOLOGY EDUCATION

Course Title	Recommended Grade Level				Recommended Credit
	9	10	11	12	
Air Conditioning Technology		x	x	x	½ -8
Automotive Technology		x	x	x	½ -8
Aviation Technology		x	x	x	½ -8
Collision Repair and Refinish		x	x	x	½ -8
Commercial and Recreational Small Engine Technology		x	x	x	½ -8
Communications Electronics		x	x	x	½ -8
Computer Aided Drafting		x	x	x	½ -8
Computer Systems Technology	x	x	x	x	½ -8
Desktop Publishing		x	x	x	½ -8
Diesel Technology		x	x	x	½ -8
Industrial Automation Technology		x	x	x	½ -8
Industrial Chemical Processes		x	x	x	½ -8
Industrial Electronics Technology		x	x	x	½ -8
Industrial Systems Maintenance		x	x	x	½ -8
Machine Tool Technology		x	x	x	½ -8
Major Appliance Repair		x	x	x	½ -8
Masonry		x	x	x	½ -8
Metal Fabrication		x	x	x	½ -8
Multimedia Technology		x	x	x	½ -8
Plastics Technology		x	x	x	½ -8
Plumbing Technology		x	x	x	½ -8
Printing Technology		x	x	x	½ -8
Residential/Commercial Carpentry		x	x	x	½ -8
Residential/Commercial Electricity		x	x	x	½ -8
Telemedia Technology		x	x	x	½ -8
Visual Communication Art Technology		x	x	x	½ -8
Welding		x	x	x	½ -8
Wood Products Manufacturing		x	x	x	½ -8

Overview of Industrial Technology Education

Industrial Technology programs are designed to provide specialized skills related to a variety of occupations. Emphasis is placed upon employability skills, state and national skill standards and student transition to post secondary education or the work place. The content of Industrial Technology Education is organized around four distinct program organizers: Communication, Construction, Manufacturing and Transportation. The programs are intended to be relevant to the modern workplace as related to technology, academics, skill standards and technical skills.

Students exiting secondary industrial technology programs should be prepared to enter the workforce at an entry level with marketable job skills. However, it must be realized that additional education beyond high school is necessary in order to obtain and maintain higher level

skills required by employers. Educators must be made aware that the academic demands of the workplace are higher than ever. The utilization of high technology in all career fields has continued and will continue to raise the academic skills required in addition too new and more advanced technical skill requirements.

Cooperative Education may be used as an integral part of any preparation program to provide the opportunity for students to bridge the gap between the training program and employment. Additional work-based learning experiences such as internships, mentoring, shadowing, and apprenticeships would also enhance the training students receive. All work-based learning experiences must conform to the guidelines established by the Division of Secondary Vocational Education.

The Industrial Technology Education Facility must reflect the related industry in as much as possible, in order to provide students with real work related experiences. Facilities should be highly organized, clean, properly lighted, and properly equipped to the maximum of budget allowances. Provisions for access to equipment that is not financially feasible should be sought out through articulation agreements with post secondary institutions or through industry contacts who may loan or provide access.

Industrial Technology Education programs should organize and conduct regular meetings with a local advisory council, which is made up of business and industry members, in the area of each program. In addition, Industrial Technology Education programs should actively develop articulation agreements with post secondary institutions for transfer of credit. This program should also use the state adopted articulation agreement in the area of electronics.

Curriculum Delivery

There are a variety of methods available that teachers may use to teach industrial technology education programs. Teachers may follow and use the Kentucky Tech Curriculum or the new KCTCS post secondary curriculum. Another integral part of the curriculum delivery systems must be the inclusion of state and national skill standards that are related to each program area. This will provide greater relevancy and accountability for students and programs. Instruction must also include integration of appropriate student organization activities such as the VICA Professional Development Program, Skills USA Competition and other organization activities. In addition, integration projects with other academic and vocational teachers is highly recommended and should be implemented whenever possible. Integrated instruction provides relevancy of academic content to real world applications within the context of any given career field.

Programs must address the employability skills that all students need, as future employees. These skill will be needed to be successful in future experiences. Included in the program should be the expectations and standards of performance for student behavior and accountability.

INDUSTRIAL TECHNOLOGY EDUCATION

Communications Technology Career Cluster

Career Majors				
Desktop Publishing Technology	Printing Technology	Visual Communication Art	Communications Electronics	Computer Aided Drafting
Technology Education (Middle School) - (for career awareness - no credit toward career major)				
Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses
Touch Keyboarding Computer Fundamentals Intro. to Graphic Com. Design Layout & Paste Up/Lab Typography and Typesetting/Lab Desktop Pub.for Graphics/Lab Desktop Publishing Special Applications	Intro. To Graphic Communications. Lithographic Camera and Darkroom Lithographic Film Assembly and Platemaking Press I & II/ Lab Technical Communications	Keyboarding Computer Fundamentals Fundamentals of Drawing I & II Color Theory Applications Trad. Layout and Graphic Design Trad. Illustration Screen Printing Computer Graphic Design /Lab Computer Illustration I / Lab	Electrical/Electronic Safety Direct Current Circuits/Lab Alternating Current Circuits / Lab Electrical Circuit Analysis Electrical Principles Devices and Circuits I & II / Lab Electronic Devices and Circuits Electronic Drafting Microcomputer Operating Systems	Basic Drafting I & II CAD I Basic Blueprint Reading Pictorial Drawing Basic Refrigeration Duct Design Illustration Techniques and Working Drawings Basic Welding and Industrial Drafting Processes Threads and Fasteners Gears and Cams Pipe Drafting
Elective Courses	Elective Courses	Elective Courses	Elective Courses	Elective Courses
>Technology Education *Typography and Typesetting *Other career related courses	>Technology Education *Special Applications *Cooperative Education *Other career related courses	>Technology Education *Production Art *Trad. Layout and Graphic Design *Other career related courses	>Technology Education *Applied Math *Technical Math I & II *Industrial Safety *Other career related courses	>Technology Education *CAD II & III *Computer Fundamentals *Applied Math *Other career related courses
>See the Technology Education - A Curriculum Framework for specific course titles *Other vocational courses directly related to a career major.				
NOTE: Three credits must come from recommended courses. To complete a career major, students must earn four career-related credits within the major <u>and</u> 3 math, 2 science, 4 English, and 2 social studies credits.				

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum. These sub-courses are used to deliver the specific technical content of each major and courses specified in this implementation manual.

INDUSTRIAL TECHNOLOGY EDUCATION

Communications Technology Career Cluster

Career Majors				
Computer Systems Technology	Multimedia Technology	Telemedia Technology		
Technology Education (Middle School) - (for career awareness - no credit toward career major)				
Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses
Electrical/Electronic Safety Direct Current Circuits/Lab Microprocessor and Interfacing Computer Repair and Servicing Technology I & II Networking Content	Keyboarding Computer Fundamentals Introduction to Multimedia Introduction to Audio and Video Multimedia Audio and Video/Lab Desktop Publishing Computer Illustration I Basic Telecommunications and Imaging Editing	Keyboarding Computer Fundamentals Audio/Video Control Room Equipment Electronic Field Production Equipment Broadcast Transmission Systems Editing Equipment		
Elective Courses	Elective Courses	Elective Courses	Elective Courses	Elective Courses
➤ Technology Education *Other career related courses	➤ Technology Education *Special Applications *Cooperative Education *Other career related courses	➤ Technology Education *Production Art *Other career related courses *		
➤ See the Technology Education - A Curriculum Framework for specific course titles *Other vocational courses directly related to a career major.				
NOTE: Three credits must come from recommended courses. To complete a career major, students must earn four career-related credits within the major <u>and</u> 3 math, 2 science, 4 English, and 2 social studies credits.				

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum. These sub-courses are used to deliver the specific technical content of each major and courses specified in this implementation manual.

INDUSTRIAL TECHNOLOGY EDUCATION

Construction Technology Career Cluster

Career Majors				
Masonry	Residential - Commercial Carpentry	Residential-Commercial Electricity	Plumbing Technology	Metal Fabrication
Technology Education (Middle School) - (for career awareness - no credit toward career major)				
Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses
Introductory Masonry Advanced Masonry Masonry Lab Brick Construction Special Techniques in Brick Construction Blueprint Reading for Construction Anchors and Reinforcement	Blueprint Reading for Construction Power Tools and Maintenance Shop Power Tools and Maintenance Lab Site Layout and Foundations Floor and Wall Framing / Lab	Direct Current Circuits / Lab Alternating Current Circuits / Lab Transformers / Lab Devices and Circuits I & II / Lab Electrical Drafting National Electric Code Electrical Construction I & II / Lab	Plumbing Fundamentals / Lab Blueprint Reading for Construction Service and Repair Fixtures and Appliances	Heat Load Calculations Duct Design Basic Welding Blueprint Reading Maintaining Industrial Equipment Parallel Line Layout Triangulation Sheet Metal I & II Radial Line Development Computer Fundamentals
Elective Courses	Elective Courses	Elective Courses	Elective Courses	Elective Courses
>Technology Education *Industrial Safety *Economics and Financial Management *Other career related courses	>Technology Education *Introduction to Drywall *Exterior and Interior Finish *Other career related courses	>Technology Education *Electrical Motor Controls *Programmable Controllers *Other career related courses *	>Technology Education *Applied Math *Technical Math I & II *Industrial Safety *Other career related courses	>Technology Education *Industrial Safety *Cooperative Education *Other career related courses
>See the Technology Education - A Curriculum Framework for specific course titles *Other vocational courses directly related to a career major.				
NOTE: Three credits must come from recommended courses. To complete a career major, students must earn four career-related credits within the major <u>and</u> 3 math, 2 science, 4 English, and 2 social studies credits.				

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum. These sub-courses are used to deliver the specific technical content of each major and courses specified in this implementation manual.

INDUSTRIAL TECHNOLOGY EDUCATION

Construction Technology Career Cluster

Career Majors				
Welding	Wood Products Manufacturing			
Technology Education (Middle School) - (for career awareness - no credit toward career major)				
Blueprint Reading for Construction SMAW Plate Lab I & II/Lab Gas Tungsten Arc Welding/Lab Certification Welding/Lab Oxy-Fuel Systems Oxy-fuel Cutting Lab	Wood Product Manufacturing Cabinet Making Technology Wood Finishing Technical Drawing and Blueprint Reading Furniture Technology Millwork Technology			
Elective Courses	Elective Courses			
>Technology Education *Industrial Safety *Other career related courses	>Technology Education *Industrial Safety *Cooperative Education *Other career related courses *			
>See the Technology Education - A Curriculum Framework for specific course titles *Other vocational courses directly related to a career major.				
NOTE: Three credits must come from recommended courses. To complete a career major, students must earn four career-related credits within the major <u>and</u> 3 math, 2 science, 4 English, and 2 social studies credits.				

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum. These sub-courses are used to deliver the specific technical content of each major and courses specified in this implementation manual.

INDUSTRIAL TECHNOLOGY EDUCATION

Transportation Technology Career Cluster

Career Majors				
Automotive Technology	Collision Repair and Refinish	Diesel Technology	Com./Rec. Small Engine Technology	Aviation Technology
Technology Education (Middle School) - (for career awareness - no credit toward career major)				
Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses
Brake Systems / Lab Automatic Transmission / Transaxles /Lab Manual Transmissions/Lab Engine Repair /Lab Computer Systems & Diagnosis /Lab Basic Automotive Electronics/Lab Electrical Systems/ Lab	Intro. to Auto Body Industrial Safety Painting and Refinishing / Lab Non-Structural Analysis and Damage Repair/Lab Non-Structural Analysis and Damage Repair / Lab II Structural Analysis and Damage Repair / Lab I & II	Mechanical Concepts Fluid Power & Lab Fuel Injection I/Lab Electrical Systems/Lab Basic Electricity/Lab Brakes I / Lab Power Trains I & Lab	Introduction to Small Engine Repair Basic Small Engine Theory/Lab Ignition/Charging Systems Fuel Systems /Lab Four Stroke Cycle Engine/Lab Two Stroke Cycle Engine/Lab	Blueprint Reading and Drawing Aircraft Weight and Balance / Lab Aircraft Cleaning and Corrosion Control / Lab
Elective Courses	Elective Courses	Elective Courses	Elective Courses	Elective Courses
>Technology Education *Suspension and Steering /Lab *Basic Fuel & Ignition Systems / Lab *Fuel Injection & Emission Systems / Lab *Other career related courses	>Technology Education *Fundamentals of Electricity *Consumer Economics *Other career related courses	>Technology Education *Consumer Economics *Steering and Suspension *Other career related courses *	>Technology Education *Electrical Systems *Introduction to Motorcycle Technology *Other career related courses	>Technology Education *Physics *Computer Fundamentals *Applied Math *Other career related courses
>See the Technology Education - A Curriculum Framework for specific course titles *Other vocational courses directly related to a career major.				
NOTE: Three credits must come from recommended courses. To complete a career major, students must earn four career-related credits within the major <u>and</u> 3 math, 2 science, 4 English, and 2 social studies credits.				

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum. These sub-courses are used to deliver the specific technical content of each major and courses specified in this implementation manual.

INDUSTRIAL TECHNOLOGY EDUCATION

Manufacturing Technology Career Cluster

Career Majors				
Industrial Electronics Technology	Machine Tool Technology	Air Conditioning Technology	Industrial Systems Maintenance	Industrial Automation Technology
Technology Education (Middle School) - (for career awareness - no credit toward career major)				
Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses
Electrical/Electronic Safety Direct Current Circuits/Lab Alternating Current Circuits / Lab Electrical Circuit Analysis Electrical Principles Devices and Circuits I & II / Lab Electronic Devices and Circuits Electronic Drafting Microcomputer Operating Systems	3- D Industrial Programming / Lab Fundamentals of Machine Tools Manual Programming CAD/CAM/CNC Blueprint Reading Computer Fundamentals	Basic Refrigeration Refrigeration Applications I / Lab Electrical Components / Lab Duct Design Heat Load Calculations Cooling and Dehumidification / Lab Heating and Humidification / Lab Heat Pump Application/ Lab Blueprint Reading for Construction	Basic Electricity / Lab Basic Blueprint Reading Fluid Power / Lab Industrial Maintenance Rotating Machinery / Lab Maintaining Industrial Equipment Industrial Maintenance Electrical Motor Controls I / Lab Industrial Safety Electrical Motor Controls II / Lab	Basic Electricity / Lab Basic Troubleshooting Computer Fundamentals Digital Systems and Microprocessors Electronic Drafting Fluid Power / Lab Industrial Safety Advanced Hydraulic Systems / Lab Advanced Pneumatic Systems and Lab Technical Communications Technical Mathematics
Elective Courses	Elective Courses	Elective Courses	Elective Courses	Elective Courses
>Technology Education *Typography and Typesetting *Other career related courses	>Technology Education *Applied Machining *Hazardous Materials Handling and Storage *Other career related courses	>Technology Education *Sheet Metal Fabrication *Ice Machines *Other career related courses	>Technology Education *Applied Math *Fundamentals of Machine Tools *Oxy-Fuel Systems *Other career related courses	>Technology Education *CAD I *Robotics *Applied Math *Other career related courses
>See the Technology Education - A Curriculum Framework for specific course titles *Other vocational courses directly related to a career major.				
NOTE: Three credits must come from recommended courses. To complete a career major, students must earn four career-related credits within the major <u>and</u> 3 math, 2 science, 4 English, and 2 social studies credits.				

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum. These sub-courses are used to deliver the specific technical content of each major and courses specified in this implementation manual.

INDUSTRIAL TECHNOLOGY EDUCATION

Manufacturing Technology Career Cluster

Career Majors				
Welding	Wood Products Manufacturing	Major Appliance Technology	Industrial Chemical Processes	Plastics Technology
Technology Education (Middle School) - (for career awareness - no credit toward career major)				
Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses
Blueprint Reading for Construction SMAW Plate Lab I & II/Lab Gas Tungsten Arc Welding/Lab Certification Welding/Lab Oxy-Fuel Systems Oxy-fuel Cutting Lab	Wood Product Manufacturing Cabinet Making Technology Wood Finishing Technical Drawing and Blueprint Reading Furniture Technology Millwork Technology	Basic Refrigeration and Air Conditioning Electrical Components and Test Equipment Gas/Electric Appliance Applications Blueprint Reading	Basic Electricity Blueprint Reading Maintenance of Industrial Equipment Fluid Power Systems	Computer Fundamentals Fluid and Mechanical Power Systems Basic Electronics Motors and Motor Control Polymer Science and Testing
Elective Courses	Elective Courses			
>Technology Education *Industrial Safety *Other career related courses	>Technology Education *Industrial Safety *Cooperative Education *Other career related courses *	>Technology Education *Industrial Safety *Cooperative Education *Other career related courses *	>Technology Education *Industrial Safety *Cooperative Education *Other career related courses *	>Technology Education *Industrial Safety *Cooperative Education *Other career related courses *
>See the Technology Education - A Curriculum Framework for specific course titles *Other vocational courses directly related to a career major.				
NOTE: Three credits must come from recommended courses. To complete a career major, students must earn four career-related credits within the major <u>and</u> 3 math, 2 science, 4 English, and 2 social studies credits.				

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum. These sub-courses are used to deliver the specific technical content of each major and courses specified in this implementation manual.

MODEL COURSE SEQUENCE

COMMUNICATIONS CAREER CLUSTER			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Communication Systems	Drafting/Computer Aided Design Tech	Electricity/ Electronics Tech	*Direct Current Circuits
Computer Applications			*Computer Systems Course

MANUFACTURING CAREER CLUSTER			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Overview of Technological Systems	Drafting Computer Assisted Design Tech	*Computer Systems Course	*Basic Electricity

*SPECIAL NOTE: The courses identified are specific content courses contained within the Kentucky TECH curriculum. These sub-courses are used to deliver the specific technical content of each major and courses specified in the Implementation Manual.

MODEL COURSE SEQUENCE

PRINTING TECHNOLOGY CAREER MAJOR			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Communication Systems	*Intro to Graphic Communication	*Lithographic Camera & Dark Room Lab	*Press I
*Computer Fundamentals	*Finishing & Binding Operations	*Lithographic Film Assembly and Plate Making Lab	*Press I Lab
			*Design Layout & Paste-Up

PLASTICS TECHNOLOGY CAREER MAJOR			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Overview of Technological Systems	*Intro to Automation	*Basic Electronics	*Plastic Processes Materials
*CAD	*Blueprint Reading & Geometric Tolerance	*Motors & Motor Control	*Polymer Science & Testing
	*Auto CAD I	*Fluid & Mech Power Systems	*Injection Molding

Air Conditioning/Refrigeration Technology

Course Description: This course includes installing, servicing and repairing heating, air-conditioning and refrigeration equipment. Academic courses include theory and laboratory experiences in the following areas: electricity, electrical components, blueprint reading, heat load calculation, industrial safety, refrigeration, air conditioning, humidification and dehumidification, heat pumps, ice machines, mathematics, science and communications. Leadership and professionalism will also be an integral part of this course provided through participation in VICA and the Professional Development Program. These courses are designed to promote success for students entering the air conditioning profession.

Academic Expectations	Content/Process
<p>2.3, 5.1</p> <p>2.1 , 1.1</p> <p>2.7, 2.13 2.31</p> <p>2.2</p> <p>6.1 1.13, 1.10</p> <p>2.3 2.1, 6.1</p> <p>2.10 2.3, 6.3 5.2, 2.10 2.36, 2.38</p> <p>2.17, 5.4 6.2, 6.3</p> <p>5.4 1.1</p>	<p>Students will</p> <ul style="list-style-type: none"> • understand and apply basic refrigeration concepts and knowledge as related to air conditioning technology. • demonstrate skill and knowledge with refrigeration applications and electrical components. • demonstrate skill and knowledge of heat load calculations. • develop competencies in the safe and efficient use of the tools, machines, materials and processes of air conditioning technology. • understand and demonstrate skill with concepts of cooling and dehumidification principles. • develop skill and knowledge of heat pump applications. • demonstrate skill and understanding of blueprint reading as related to the construction trades. • develop skill and knowledge with electrical principles and industrial safety. • engage in meaningful, hands-on, minds-on, and conceptual based activities related to air conditioning technology. • demonstrate knowledge of ice machines. • develop skills and competencies in the fabrication of sheet metal and the design of duct work. • develop personal and professional skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate skills necessary to work with others to solve problems. • apply concepts from mathematics, science, and communications in the context of air conditioning technology. • demonstrate employability and social skills relative to careers. • develop an understanding EPA (Environmental Protection Agency) laws and regulations related to air conditioning technology.

Connections

Kentucky Tech Curriculum
 Heating, Air-Conditioning, and Refrigeration Technician Skill Standards Certification
 Professional Development Program
 Secretary's Commission on Achieving Necessary Skills (SCANS Skills)

Automotive Technology

Course Description: This program includes basic automotive electricity, engine repair, climate control, brake systems, and manual transmissions. Also included are basic fuel and ignition systems, suspension and steering, automatic transmission/transaxles, emission systems, computer control systems and diagnosis, and precision measurement. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
	Students will <ul style="list-style-type: none"> understand and apply basic and advanced electrical concepts and principles related to automotive technology. understand and apply concepts of engine repair. understand apply concepts of climate control systems. demonstrate knowledge and understanding of automotive brake systems. engage in meaningful, hands-on, minds-on, and conceptual based automotive based activities. develop competencies in the safe and efficient use of the tools, machines, materials, and basic of automotive fundamentals. demonstrate and develop competencies with manual transmissions. apply concepts from mathematics, science, and communications in the context of automotive technology. demonstrate and develop competencies with automotive suspension and steering systems. demonstrate knowledge and understanding of fuel and ignition systems. demonstrate knowledge and understanding of automotive emission systems. develop competencies and understanding of automatic transmission and transaxles. use computer based technologies to process information and manipulate computer control systems and diagnostic capabilities. develop workplace readiness and employability skills necessary to work with others, and reach an employable exit point. develop personal and professional skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities. demonstrate employability and social skills relative to careers
2.3	
5.5	
5.1	
2.5	
6.3	
2.34	
2.2	
6.2	
2.3, 5.1	
2.3	
2.6	
1.1	
1.16	
2.38	
2.36, 2.37	
2.37	
Connections Kentucky Tech Curriculum NATEF (National Automotive Technicians Education Foundation, Inc.) ASE (Automotive Service Excellence) Certification in Automotive Technology Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Aviation Technology

Course Description: Instruction in aviation careers, aviation history, air traffic control, aircraft maintenance, aerodynamics and flight is the basis for this program. Knowledge of various aircraft systems, maintenance practices, and flight principles are used to develop skills in troubleshooting, and problem solving. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
<div>1.10,1.13</div> <div>2.3, 6.1</div> <div>2.20</div> <div>2.37, 2.38</div> <div>2.3, 2.10</div> <div>2.36</div> <div>2.17, 5.5</div> <div>5.1, 2.10,</div> <div>6.3</div> <div>1.1, 1.16</div> <div>2.36, 2.37</div> <div>2.36</div>	Students will <ul style="list-style-type: none"> • understand, apply, and demonstrate aircraft maintenance concepts, principles, and techniques used in the aviation industry. • understand, apply, and demonstrate aircraft flight concepts, principles, and techniques used in the aviation industry. • exhibit knowledge and understanding of aviation history. • demonstrate knowledge and understanding of work ethics and expectations desired for the aviation industry. • engage in meaningful, hands-on, minds-on, and conceptual based aviation related activities. • demonstrate knowledge and understanding of aviation careers, employment outlook, and post-secondary education opportunities. • develop and demonstrate skills necessary to work independently, and with others to solve problems. • develop competencies in the safe and efficient use of the tools, machines, materials, and processes of aviation technology. • apply concepts from mathematics, science, communications and computer skills in the context of aviation technology. • use computer based technologies to process information and manipulate computer control systems. • develop personal and professional skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate employability and social skills relative to careers.
<p style="text-align: center;">Connections</p> <p>Kentucky Tech Curriculum Professional Development Program FAA Ground School Certification Secretary's Commission on Achieving Necessary Skills (SCANS Skills)</p>	

Collision Repair and Refinish Technology

Course Description: This program includes introduction to auto body repair, non-structural analysis and damage repair, structural analysis and damage repair, and painting and refinishing. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.1, 6.2 2.1, 6.1 2.10 5.5,1.1 6.2,6.3 1.1 2.31 2.2 6.2 1.16 2.17, 5.4 5.1, 2.31 2.36, 2.37	Students will <ul style="list-style-type: none"> • integrate and apply core knowledge in the context of collision repair. • engage in meaningful, hands-on, minds-on, and conceptual based collision repair activities. • understand and apply basic concepts of non-structural analysis and damage repair. • demonstrate and apply knowledge in structural analysis and damage repair. • apply concepts from mathematics, science, and communications in the context of collision repair. • understand and apply knowledge that is relevant to mechanical and electrical components used in automotive applications. • develop and demonstrate competencies with automotive painting and refinishing technologies. • develop and demonstrate competencies with automotive plastic and adhesive applications and technologies. • develop and demonstrate basic competencies in welding techniques. • use computer based technologies to process information related to collision repair. • demonstrate employability and social skills relative to careers. • develop competencies in the safe and efficient use of the tools, machines, materials, and processes of automotive technology. • develop personal and professional skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities.
Connections Kentucky Tech Curriculum NATEF (National Automotive Technicians Education Foundation, Inc.) ASE (Automotive Service Excellence) Certification in Collision Repair and Refinish. I-CAR (Inter-industry Conference on Auto Collision Repair) Curriculum Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Communications Electronics

Course Description: This program includes basic AC & DC circuits, electronic devices & circuits, schematic literacy, digital electronics, microprocessors, fiber optics, analog and digital communications systems and microwave technology. A solid base of communications and information management, technical mathematics and algebra, as well industrial safety and tool systems will be developed through direct application. Leadership and professionalism will be developed through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.1, 1.10 1.5 - 1.9 2.1, 2.10 2.3, 5.3 5.5 5.1 6.3 5.5 6.1 2.17 5.5 2.5 2.38 2.36 6.2, 6.3	Students will <ul style="list-style-type: none"> • develop competencies and skills in the area of electronic drafting/and the use of schematics. • develop competencies and skills with digital techniques. • engage in meaningful, hands-on, minds-on and conceptual based activities in the area of electronic technology. • develop skills and competencies with electrical/electronics math/algebra. • demonstrate knowledge and understanding of service equipment and digital techniques. • develop competencies in the safe and efficient use of the tools, machines, materials, and processes of communication electronic technology. • develop knowledge and skills with the applications of microprocessors and fiber optics. • develop skills necessary to work with others and solve problems. • understand and apply knowledge of direct current circuits and alternating current circuits as related to communication electronic technology. • understand and apply knowledge of electronic devices and components in the context of communication electronics. • understand and apply knowledge of RF energy including ionospheric propagation and microwave systems. • develop and demonstrate knowledge of personal electromagnetic field safety through shielding and good engineering. • develop personal and professional leadership skill through participation in the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate employability and personal management skills relative to careers through the Professional Development Program. • apply concepts from mathematics, science, and communications in the context of collision repair.
<p style="text-align: center;">Connections</p> <p>Kentucky Tech Curriculum Skill Standards such as EAI (Electronics Industries Association). FCC rules and regulations. Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)</p>	

Computer Aided Drafting

Course Description: This program includes applied mathematics, computer fundamentals, basic drafting, computer aided drafting and advanced dimensioning. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
6.3, 2.3 2.2, 5.5 1.1, 5.5 2.1, 6.1 1.12 1.16 6.3 6.2 5.3 2.36, 2.38 2.17, 5.4	Students will <ul style="list-style-type: none"> • apply knowledge and understanding of basic computer aided drafting. • develop knowledge and understanding of concepts of CAD architecture, construction techniques, structural systems and design and planning. • engage in hands-on, minds-on, and conceptual based computer aided drafting activities. • demonstrate knowledge and skill with illustration techniques and working drawings. • develop skill and knowledge of surveying and working drawings. • demonstrate skills and abilities with keyboarding, electronic and electrical drafting. • apply concepts from mathematics, science, and communications in the context of computer aided drafting. • develop knowledge and understanding of basic welding and industrial drafting processes. • develop and demonstrate competencies with pictorial drawings, threads and fasteners, gears and cams, and pipe drafting. • develop personal and professional leadership skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate employability and social skills relative to careers.
<p style="text-align: center;">Connections</p> Kentucky Tech Curriculum CADD Skill Standards or related standards Kentucky Manufacturing Skill Standards Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Computer Systems Technology

Course Description: This program will provide skill development and instruction related to PC repair, software applications, hardware, networking systems, computer maintenance, system diagnostics, networks data communications, and other networking related content. Participation in the VICA student organization and STLP will also be an integral part of this course.	
Academic Expectations	Content/Process
1.16, 1.1 1.10 5.1 2.13 6.3 2.1, 2.7, 1.1 2.12 1.2 2.36 2.37, 2.38 6.1, 6.2 2.36 6.1, 5.5	Students will <ul style="list-style-type: none"> • demonstrate knowledge and skill with computer fundamentals such as system components, memory, connections, PC assembly/disassembly and maintenance procedures. • demonstrate knowledge and skill with software applications related to operating systems, diagnostic software and platforms. • develop skills, knowledge and understanding of local area networks in topics such as topologies, network design, software, protocols and OSI layers. • develop skills knowledge and understanding of dial up communications concepts such as phone lines, communication software, file transfer and troubleshooting. • develop knowledge and understanding of peer-to-peer network concepts. • apply concepts from mathematics, science, communications and computer skills in the context of computer systems technology. • demonstrate knowledge and understanding of basic I/O such as keyboards, video, monitors, troubleshooting and other I/O components. • develop knowledge and skills related to drive components and related problems and applications. • demonstrate employability and social skills relative to careers. • develop personal and professional development skills through involvement in VICA student organization activities and STLP (Student Technology Leadership Program). • demonstrate and develop skills with wide area networks including e-mail, Internet, network topologies, components, routers, WAN services and other related content. • demonstrate knowledge and understanding of computer systems careers, employment outlook and post-secondary education opportunities. • engage in meaningful, hands-on, minds-on and conceptual based computer systems related concepts.
Connections A+ Certification CNA (Certified Novell Administrator) or MSCE (Microsoft Certified Engineer) Certification Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills) Student Technology Leadership Program (STLP)	

Commercial and Recreational Small Engine Technology

Course Description: This course will instruct students in practical information about lawn equipment, light commercial, marine and/or motorcycle engine construction, operation, lubrication, maintenance, troubleshooting, service, rebuilding, and repair. Continuing students will develop skills in maintaining full chassis and power transfer systems in lawn, light commercial, marine and/or motorcycle equipment. Students will demonstrate the safe and proper use of hand, measuring and power tools in a live work type environment. Leadership and professionalism will be developed through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.1, 6.1 2.3 2.1, 2.10 6.3 5.5, 5.1 2.2 2.5 2.3 6.2 1.2 2.1 2.10, 6.3 2.37, 2.38 2.17 6.2, 6.3	Students will <ul style="list-style-type: none"> • demonstrate knowledge and understanding of small engine theory • develop an understanding and knowledge of small engine repair. • engage in meaningful, hands-on, minds-on, and conceptual based activities related to small engine technology. • develop knowledge and understanding of marine technology. • develop skill and competencies with marine electrical, fuel systems, powerhead overhaul, mid-section, lower unit, trim/tilt components of marine engines. • understand electrical systems theory. • demonstrate knowledge and understanding of four cycle engines and stern drive systems. • develop skills and competencies with fuel systems, chassis systems and carburetors. • demonstrate knowledge and understanding of two and four stroke cycle engines. • demonstrate knowledge and understanding of content related to motorcycle technology. • develop competencies in the safe and efficient use of the tools, machines, materials and processes of small engine technology. • develop competencies with use of tools and measurements, portable two cycle equipment and engine tune up. • develop personal and professional leadership skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate employability and personal management skills relative to careers through the Professional Development Program. • apply concepts from mathematics, science, and communications in the context of collision repair.
Connections Kentucky Tech Curriculum Related Skill Standards Certification Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Desktop Publishing

Course Description: This program includes touch keyboarding, computer fundamentals, introduction to graphic communications, design, layout, and paste-up, typography and typesetting, and desktop publishing for graphics. Also included are special applications for desktop publishing, lithographic camera and darkroom processes, digital acquisition, digital imaging, technical communications and workplace principles. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.13, 2.22 2.1, 2.3 1.1, 1.2 1.13, 5.2 1.10 5.1 6.1, 6.3 2.1, 2.3 2.17, 5.4 1.16 5.5, 6.3 2.36, 2.38	Students will <ul style="list-style-type: none"> • demonstrate use of knowledge and understanding in principles of design. • understand and apply basic concepts of printing processes. • develop competencies in graphic communication concepts and vocabulary • develop and demonstrate competencies in the production of layouts. • understand and apply concepts of reading and writing job specifications for printing. • understand and apply the use of a paste-up board. • apply concepts from mathematics, science, and communications in the context of desktop publishing. • engage in meaningful, hands-on, minds-on, and conceptual based desktop publishing activities. • develop workplace readiness social and employability skills necessary to work with others, and reach an employable exit point. • develop competencies in electronic typesetting • demonstrate and develop competencies in the parameters of hardware and software. • develop personal and professional skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities.
Connections Kentucky Tech Curriculum Professional Development Program PIA (Printing Industries of America) Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Diesel Technology

Course Description: This program teaches the skills needed to analyze malfunctions and to repair, rebuild and maintain construction equipment, farm equipment, or medium and heavy trucks. This program includes climate control, computer fundamentals, mechanical concepts, introduction to diesel engines, and introduction to maintenance welding. Also included are hydraulics, power trains, brakes, electrical systems for diesel equipment, and diesel engine repair. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
5.5 2.3 2.1, 2.10 5.1, 6.3 6.3 2.2, 5.1 1.1 2.11 1.16 5.4 2.3 2.10, 2.3 2.36 ,2.38 2.17	Students will <ul style="list-style-type: none"> • understand and apply basic concepts of diesel engine repair. • understand and apply basic concepts of climate control systems. • engage in meaningful, hands-on, minds-on, and conceptual based diesel technology based activities. • develop competencies in the safe and efficient use of the tools, machines, materials, and processes of diesel technology. • apply concepts from mathematics, science, and communications in the context of automotive technology. • develop and demonstrate competencies with suspension and steering systems. • demonstrate knowledge and understanding of basic fuel injection systems. • develop competencies and understanding of power trains and undercarriage systems. • use computer based technologies to process information, manipulate computer control systems and diagnostic capabilities. • develop skills necessary to work with others to solve problems. • develop skills and competencies with electrical systems for diesel equipment. • develop skills, knowledge, technical competencies and understanding of hydraulic systems. • develop personal and professional skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate employability and social skills relative to careers.
Connections Kentucky Tech Curriculum NATEF (National Automotive Technicians Education Foundation, Inc.) ASE (Automotive Service Excellence) Certification in Diesel Technology Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Electrical Residential/Commercial Technology

Course Description: This program includes DC circuits, AC circuits, electrical drafting, national electric code, and electrical construction. Also included is computer fundamentals and industrial safety. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.1, 1.10 2.2 2.1, 2.3 1.11 5.5 5.1 2.3, 5.5 5.4 5.2, 6.2 5.4 2.17 2.3, 2.5 6.3 2.2 2.13 2.37, 2.38 2.36	Students will <ul style="list-style-type: none"> • develop competencies and skills in the area of electrical drafting • develop competencies and skills with devices and circuits. • engage in meaningful, hands-on, minds-on and conceptual based activities in the area of electrical technology. • develop skills and competencies with electrical construction. • demonstrate knowledge and understanding of the National Electrical Code and Poly phase Power Calculations. • demonstrate knowledge and skill in working with transformers. • develop competencies in the safe and efficient use of the tools, machines, materials, and processes of electrical technology. • demonstrate knowledge and skill with home automation technology and manufactured housing applications. • develop competencies and skills in the area of digital techniques. • develop knowledge and skills with the applications of microprocessors and fiber optics. • develop skills necessary to work with others and solve problems. • understand and apply knowledge of direct current circuits and alternating current circuits as related to electrical technology. • demonstrate knowledge and understanding of fluid power systems. • demonstrate knowledge and understanding of programmable logic controllers and electrical motor controls. • demonstrate knowledge and understanding of rotating machinery. • develop personal and professional leadership skill through participation in the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate employability and social skills relative to careers.
<p style="text-align: center;">Connections</p> <p>Kentucky Tech Curriculum EIA—Electronics Industries of America Certification or other Certification Area Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)</p>	

Industrial Systems Maintenance

Course Description: This program includes training in basic electricity, blueprint/ schematic reading, basic computer systems, fluid power, rotating machinery and motor controls, basic machine tool and welding and industrial equipment preventative maintenance and troubleshooting. This course is usually delivered through existing programs and can be tailored to - several multi-skilled training needs. Other courses that can easily be included as part of this program are air conditioning, metal fabrication, carpentry, mechanics, etc. Leadership and professional development training will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.1, 2.2 1.10 2.3 5.5 5.5, 1.1 2.10 2.5 2.12, 5.2 2.8, 2.7 6.3, 1.1 2.5 2.31 2.37, 2.38 2.36 6.2, 6.3	Students will <ul style="list-style-type: none"> • understand and apply basic electricity concepts and knowledge as related to industrial maintenance. • demonstrate knowledge and skill in blueprint reading and electrical drafting. • demonstrate knowledge, understanding, and competencies with fluid power systems. • develop skills and competencies in maintaining industrial equipment. • demonstrate knowledge and understanding of the maintenance of industrial equipment. • engage in hands-on, minds-on, and conceptual based industrial maintenance activities. • develop skill and understanding of principles and applications of power mechanics. • demonstrate knowledge and skills needed to perform maintenance, repair or replacement of programmable logic controllers and other electronic controllers. • demonstrate skill and competencies with electrical motor controls. • develop knowledge and skill with the applications and fundamentals of machine tools. • demonstrate knowledge and competencies with oxy-fuel systems and shielded metal arc welding. • demonstrate knowledge and understanding of industrial safety. • develop personal and professional leadership skills through participation with the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate employability social and personal management skills relative to careers through the Professional Development Program. • apply concepts from mathematics, science, and communications in the context of collision repair.
Connections Kentucky Tech Curriculum Professional Development Program Kentucky Manufacturing Skill Standards Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Industrial Automation Technology

Course Description: Instruction and practical experiences are gained with setting up automatic machines, direct and alternating circuits, robotics, fluid power systems, economics and financial management, processing equipment, and digital systems and microprocessors that work together as part of a total automated manufacturing system. Participation in the VICA student organization will also be an integral part of this course.	
Academic Expectations	Content/Process
1.16, 5.1 2.3, 5.5 2.1, 2.10 2.12, 1.16 2.3, 5.1 1.1, 2.1, 2.7 6.3 2.3, 5.1, 2.3, 2.10 1.16 2.12, 2.13 2.37, 2.38 5.1, 2.3 2.36, 2.17	Students will <ul style="list-style-type: none"> • demonstrate skill and knowledge of devices and circuits, electrical construction, digital electronics and microprocessors within the context of Industrial Automation. • demonstrate understanding of direct current and alternating current circuits within the context of manufacturing systems. • engage in hands-on, minds-on, and conceptual based activities related to industrial automation technology. • develop understanding and skill with programmable logic controllers. • demonstrate knowledge and understanding of fluid power systems and advanced pneumatic and hydraulic systems. • apply concepts from mathematics, science, and communications within the context of manufacturing systems. • develop knowledge and understanding of flexible manufacturing systems. • develop knowledge and understanding of computer-integrated manufacturing. • demonstrate knowledge and understanding of robotics and robotics applications within context of manufacturing systems. • use computer based technologies as related to concepts within manufacturing technology. • understand concepts of statistical process control and quality control and management. • develop personal and professional skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities. • develop competencies in the safe and efficient use of the tools, machines, materials and processes of industrial automation technology. • demonstrate employability and social skills relative to careers.
Connections Kentucky Tech Curriculum Kentucky Manufacturing Skill Standards Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Industrial Chemical Technology

Course Description: This program includes DC circuits, industrial safety, electrical math, blueprint reading, and maintaining industrial equipment. Also included is introduction to chemical technology, technical applied chemistry, AC circuits, technical math, and fluid power. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
6.1, 1.1 1.10 2.2, 2.3 5.5, 1.2 6.2, 2.10 2.31 2.37, 2.38 2.36 6.2, 6.3	Students will <ul style="list-style-type: none"> • understand and apply basic electricity concepts and knowledge as related to industrial chemical technology. • demonstrate knowledge and skill in blueprint reading. • demonstrate knowledge, understanding, and competencies with fluid power systems. • demonstrate knowledge and understanding of the maintenance of industrial equipment. • engage in hands-on, minds-on, and conceptual based industrial chemical technology activities. • demonstrate knowledge and understanding with concepts of industrial safety. • develop personal and professional leadership skills through participation with the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate employability and social skills relative to careers. • apply concepts from mathematics, science, and communications in the context of collision repair.
Connections Kentucky Tech Curriculum Professional Development Program Kentucky Manufacturing Skill Standards Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Industrial Electronics Technology

Course Description: This program includes basic AC & DC circuits, transformers, electronic devices & circuits, rotating machinery and motor controls, digital electronics, microprocessors, fiber optics, programmable logic controllers, fluid & pneumatic systems, and robotics systems. A solid base of communications and information management, technical mathematics and algebra, as well industrial safety and tool systems will be developed through direct application. Leadership and professionalism will be developed through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.1, 1.10 1.5 - 1.9 2.1 6.1 2.10 2.12 5.3 2.3, 5.5 5.1 1.1, 6.3 2.17 6.1, 5.1 2.13 5.5 2.5, 5.5 6.3 2.37, 2.38 2.36 6.2, 6.3	Students will <ul style="list-style-type: none"> • develop competencies and skills in the area of electronic drafting • develop competencies and skills with digital techniques. • engage in meaningful, hands-on, minds-on and conceptual based activities in the area of electronic technology. • develop skills and competencies with electrical/electronics math/algebra. • demonstrate knowledge and understanding of service equipment and digital techniques. • demonstrate knowledge and skill in working with transformers. • develop competencies in the safe and efficient use of the tools, machines, materials, and processes of industrial electronic technology. • develop competencies and skills in the area of power distribution systems. • develop knowledge and skills with the applications of microprocessors and fiber optics. • develop skills necessary to work with others and solve problems. • understand and apply knowledge of direct current circuits and alternating current circuits as related to industrial electronic technology. • demonstrate knowledge and understanding of fluid power/pneumatic systems. • demonstrate knowledge and understanding of programmable logic controllers and electrical motor controls. • develop skills and competencies with solid state motor controls and robotics systems. • demonstrate knowledge and understanding of rotating machinery and electric motor controls. • develop personal and professional leadership skill through participation in the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate employability and personal management skills relative to careers through the Professional Development Program. • apply concepts from mathematics, science, and communications in the context of collision repair.
<p style="text-align: center;">Connections</p> <p>Kentucky Tech Curriculum Skill Standards such as EIA (Electronics Institute of America) or other. Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)</p>	

Machine Tool Technology

Course Description: This program includes applied mathematics, basic blueprint reading, computer fundamentals, fundamentals of machine tools, manual programming CAD/CAM, CNC and applied machining. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.10, 1.13 2.3, 2.10 1.1, 5.5 6.1, 2.8 2.1, 2.3 2.7 2.12, 2.10 1.16 1.16, 5.2 2.7, 6.3 2.13 2.17, 5.4 2.37, 2.38 6.2 2.2 2.12 2.36	Students will <ul style="list-style-type: none"> • demonstrate knowledge and skill in blueprint reading • develop competencies in the safe and efficient use of the tools, machines, materials and processes of machine tool technology. • demonstrate and develop skills and knowledge with the fundamentals of machine tools. • understand and apply the concepts of manual programming, CAD/CAM and CNC. • engage in meaningful, hands-on, minds-on and conceptual based machine tool activities. • develop and demonstrate skills and abilities with concepts of applied machining. • understand, develop and apply skills with CNC Programming. • understand, develop and apply skills in industrial machining. • develop knowledge and understanding of 3-D programming techniques. • develop skills and abilities with precision measurement for machinist and the use of the machinist handbook. • develop skills and knowledge with statistical process control. • develop skills necessary to work with others and solve problems. • engage in personal and leadership activities associated with the Vocational Industrial Clubs of America (VICA) student organization. • concepts from mathematics, science and communications in the context of machine tool technology. • develop, understand, apply skills in metallurgy. • demonstrate knowledge and competencies with oxy-fuel systems and shielded metal arc welding. • demonstrate employability and social skills relative to careers.
Connections Kentucky Tech Curriculum NTMA (National Tool and Machinists Association) Standards Kentucky Manufacturing Skill Standards Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Major Appliance Technology

Course Description: This program includes installing, servicing and repairing automatic washers, automatic dishwashers, gas/electric dryers, gas/electric ranges, window air conditioners, trash compactors and microwave ovens. Academic courses include theory, and laboratory experiences in the following areas: electricity, electrical components, blueprint reading, industrial safety, air conditioning, refrigeration, gas/electric appliances, microwave ovens, mathematics, science and communications. Leadership and professionalism will also be an integral part of this course, provided through participation in VICA and the Professional Development Program.

Academic Expectations	Content/Process
<p>2.1, 5.1</p> <p>1.1,</p> <p>2.7, 2.13</p> <p>5.1, 2.31</p> <p>2.2</p> <p>2.3</p> <p>1.13, 1.10</p> <p>2.31</p> <p>6.1, 2.10</p> <p>6.3</p> <p>5.5</p> <p>2.37, 2.38</p> <p>2.17, 5.4</p> <p>6.2, 6.3</p> <p>2.36</p> <p>2.15</p>	<p>Students will</p> <ul style="list-style-type: none"> • understand and apply basic refrigeration and air conditioning concepts and knowledge as related to major appliance technology. • demonstrate skill and knowledge of refrigeration and air conditioning applications. • demonstrate skill and knowledge of electrical components and test equipment. • develop competencies in the safe and efficient use of the tools, machines, materials and processes of major appliance technology. • understand and demonstrate skill with concepts of air conditioning and refrigeration principles. • develop skill and knowledge of gas/electric appliance applications. • demonstrate skill and understanding of blueprint reading as related to the major appliance profession. • develop skill and knowledge with electrical principles and industrial safety. • engage in meaningful, hands-on, minds-on, and conceptual based activities related to major appliance technology. • demonstrate knowledge and skill of serving microwave ovens. • develop skills and competencies in the service of trash compactors. • develop personal and professional skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate skill necessary to work with others to solve problems. • apply concepts from mathematics, science, and communications in the context of air conditioning technology. • demonstrate employability and social skills relative to careers. • develop an understanding of EPA laws and regulation as related to major appliance technology.
<p style="text-align: center;">Connections</p> <p>Kentucky Tech Curriculum National Skill Standards Certification Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)</p>	

Masonry

Course Description: This program is designed to teach masonry students to perform at national and state industry standards. This program includes introduction to construction, safety, blueprint reading, introduction to masonry, advanced masonry, brick and special techniques in brick construction. Upon successful completion of identified courses meeting industry standards students will be issued a “competent worker certificate”. Participation in the VICA student organization will also be an integral part of this course.	
Academic Expectations	Content/Process
2.38 6.3, 2.1 1.10, 1.13 2.3, 6.1, 2.10 5.5, 1.1 2.17 2.38, 2.37 1.3, 2.8 5.1, 1.10 1.11 2.36 6.2, 6.3	Students will <ul style="list-style-type: none"> • develop competent entry level basic skills to meet national construction industry standards. • master math, science, writing, reading and communication skills to obtain an entry level position in the construction industry. • develop industry standards and core competencies in blueprint reading, safety, introduction to masonry, advanced masonry, brick, and special techniques in brick construction. • engage in meaningful, hands-on, minds-on and conceptual based activities in the area of masonry. • develop competencies in the area of tools, machines, materials and processes of masonry. • develop skills necessary to work with others and solve problems. • develop personal and professional leadership skills through the VICA professional development program. • identify careers associated with the construction industry. • develop core skills to be a competent and productive worker in the construction industry and meet industry standards. • develop career portfolios to keep records of training, transcripts and skills obtained during training. • demonstrate employability and social skills relative to careers. • apply concepts from mathematics, science, and communications in the context of masonry.
Connections Associated General Contractors (AGC) Craftworkers Training Program KY- Homebuilders NCCER Craft Training Program Professional Development Program Kentucky Tech Curriculum Secretary’s Commission on Achieving Necessary Skills (SCANS Skills)	

Metal Fabrication

Course Description: This course includes training in heat load calculations, duct design, blueprint reading, welding, industrial safety, metal trade information and metals, parallel line layout, triangulation, radial line development and residential and industrial maintenance. Sheet metal and advanced sheet metal fabrication techniques will be developed through the use and understanding of the many hand and power tools used in the craft. Leadership and professional development training will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.1, 2.2 1.10, 5.5 2.3 6.2 6.3 2.1,2.10 2.31, 2.5 5.3 2.9 2.10 2.7, 2.11 5.5 2.3 2.37, 2.38 2.36 6.2, 6.3	Students will <ul style="list-style-type: none"> • understand and apply heat load calculations to duct design layouts. • demonstrate knowledge and skill in blueprint reading. • demonstrate knowledge and understanding, of various duct designs. • develop skills and competencies in maintaining industrial equipment. • demonstrate basic welding skills related to metal fabrication. • engage in hands-on, minds-on, and conceptual based metal fabrication activities. • understand and demonstrate a working knowledge of industrial safety. • develop and demonstrate a knowledge of metal trades and metals. • develop and apply parallel line layouts. • develop and apply triangulation layout techniques. • demonstrate the ability to apply radial line development. • demonstrate a knowledge of all hand tools and techniques. • develop and demonstrate the ability to form various assemblies including, but not limited to, air handling duct work. • develop personal and professional leadership skill through participation with the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate employability, social and personal management skills relative to careers through the Professional Development Program. • apply concepts from mathematics, science, and communications in the context of collision repair.
Connections Kentucky Tech Curriculum Professional Development Program Kentucky Manufacturing Skill Standards Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Multimedia Technology

Course Description: This program includes business English, professional development, keyboarding, microcomputer operating systems, audio and video systems, Internet and intranet applications and computer networking concepts. Also included are telecommunications, computer fundamentals, economics and financial management, design, layout, and paste-up, typography and typesetting, digital acquisition, digital imaging, marketing, multimedia, webpage design and workplace principles. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.16, 2.3 2.1 1.13, 2.22 2.1, 6.1 1.16, 2.1 1.13, 5.2 1.13, 2.22 2.1, 2.7 ,1.1 2.17, 5.4 1.3 5.2, 6.2 5.5, 6.3 2.37, 2.38 2.36	Students will <ul style="list-style-type: none"> • understand and apply basic concepts of operating systems in micro-computing • demonstrate knowledge and understanding with computer networking concepts. • demonstrate knowledge and understanding in principles of design. • engage in meaningful, hands-on, minds-on, and conceptual based multimedia technology activities. • develop competencies in telecommunications concepts • develop and demonstrate competencies in the production of layouts. • understand and apply concepts of webpage design. • apply concepts from mathematics, science, and communications in the context of multimedia technology. • develop workplace readiness and employability skills necessary to work with others, and reach an employable exit point. • develop competencies in electronic typesetting. • understand and apply concepts of Internet and intranet applications • demonstrate and develop competencies in the parameters of hardware and software. • develop personal and professional skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate employability and social skills as relative to careers.
Connections Kentucky Tech Curriculum Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Plastics Technology

Course Description: This program will provide students with a variety of skills and abilities related to the plastics industry. Content will include application of computers, fluid and mechanical power systems and manufacturing processes related to the plastics industry. Content will also cover injection molding, physics concepts, motors and motor control, polymer science and testing and mold setting. Participation in the VICA student organization and professional development program will also be an integral part of this program.	
Academic Expectations	Content/Process
1.16 2.2, 5.5 6.1, 6.3 1.1, 1.3 2.3, 5.5 6.2 2.1, 6.1, 2.10 2.5 2.3 6.1, 2.3 5.5 2.37, 2.38 2.17, 5.4 5.1, 2.10 2.13	Students will <ul style="list-style-type: none"> • understand and develop skill with computer applications. • understand and develop skill with fluid and mechanical power systems. • apply concepts from mathematics, science and communications in the context of plastics technology. • demonstrate and develop skills in the areas of manufacturing processes as related to the plastics industry. • understand and apply the concepts of basic electronics as applied within the context of the plastics industry. • develop knowledge and understanding of plastic processes and materials. • engage in meaningful, hands-on, minds-on and conceptual based plastics technology activities. • apply concepts of UTC Physics with the context of plastics technology. • develop knowledge and understanding related to polymer science and testing. • demonstrate knowledge and understanding of motors and motor control as related to mold setting. • develop knowledge skills, and abilities with concepts of injection molding. • engage in personal and leadership activities associated with the Vocational Industrial Clubs of America (VICA) student organization. • demonstrate employability and social skills relative to careers. • develop competencies in the safe and efficient use of the tools, machines, materials and processes of plastics technology. develop and integrate knowledge and skills in quality control concepts.
Connections Kentucky Tech Curriculum Kentucky Manufacturing Skill Standards Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Plumbing

Course Description: This program includes basic blueprint reading, blueprint reading for construction, basic welding for non-majors, fundamentals of electricity for non-majors, and plumbing fundamentals. Also included are fixtures and appliances, service and repair, computer fundamentals, industrial safety, and fundamentals of mathematics. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
2.36 1.10, 5.5 5.5, 2.3 6.1, 6.3 5.1, 1.11 2.3, 6.1 2.36 2.37, 2.38 2.1, 2.3, 2.10 2.36 2.37, 2.17	Students will <ul style="list-style-type: none"> • identify career paths in the construction industry. • demonstrate knowledge and basic skills for blueprint reading. • demonstrate knowledge and basic skills for service and repair of plumbing systems and appliances. • apply concepts from mathematics, science, communications and computer skills in the context of plumbing technology. • develop career portfolios to keep a personal record of training, transcripts, and skills obtained during training. • develop competencies in the safe use of tools and equipment. • develop skills to be a competent and productive worker in the construction industry. • develop personal and professional leadership skills through VICA student organization activities. • understand and demonstrate all core course content related to residential and commercial plumbing. • engage in hands-on, minds-on and conceptual based activities related to plumbing systems and applications. • demonstrate employability and social skills relative to careers. • demonstrate knowledge and understanding of work ethics and expectations desired for the construction industry.
<p style="text-align: center;">Connections</p> <p>Kentucky Tech Curriculum Professional Development Program NCCER Craft Training Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)</p>	

Printing Technology

Course Description: This program includes touch keyboarding, computer fundamentals, economics and financial management, introduction to graphic communications, design, layout, and paste-up, and finishing and binding. Also included are lithography and platemaking, press operations, special applications, technical communications and workplace principles. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.13, 2.22 5.2 1.1, 2.1 6.3 2.3 2.10 2.17 1.2, 1.3 1.2, 1.3 2.1 5.1 5.2 2.37, 2.38 2.36	Students will <ul style="list-style-type: none"> • demonstrate understanding and knowledge of principles of design. • demonstrate and develop competencies in the production of layouts. • understand and apply basic concepts of printing processes. • apply concepts from mathematics, science, and communications in the context of printing technologies. • engage in meaningful, hands-on, minds-on, and conceptual based printing activities. • develop workplace readiness and employability skills necessary to work with others, and reach an employable exit point. • develop competencies in graphic communication concepts and vocabulary. • understand and apply concepts of reading and writing job specifications for printing. • develop competencies in finishing operations needed to complete a printing job. • develop and demonstrate competencies in bindery equipment operations. • understand and apply the use of a paste-up board. • develop competencies in darkroom operations. • develop personal and professional skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities • demonstrate employability and social skills relative to careers.
Connections Kentucky Tech Curriculum Professional Development Program PIA (Printing Industries of America) Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Residential/Commercial Electricity

Course Description: This program includes DC circuits, AC circuits, electrical drafting, national electric code, and electrical construction. Also included is computer fundamentals and industrial safety. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.10, 1.13 2.2, 5.5 2.3, 2.10 6.1, 1.1 1.11, 2.11 2.3, 5.5 1.10 5.3 1.16 6.2 2.17, 5.4 2.2, 5.2 2.5, 2.10 1.16 5.1 2.37, 2.38 2.36	Students will <ul style="list-style-type: none"> • develop competencies and skills in the area of electrical drafting • develop competencies and skills with devices and circuits. • engage in meaningful, hands-on, minds-on and conceptual based activities in the area of electrical technology. • develop skills and competencies with electrical construction. • demonstrate knowledge and understanding of the National Electrical Code and Poly phase Power Calculations. • demonstrate knowledge and skill in working with transformers. • develop competencies in the safe and efficient use of the tools, machines, materials, and processes of electrical technology. • demonstrate knowledge and skill with home automation technology and manufactured housing applications. • develop competencies and skills in the area of digital techniques. • develop knowledge and skills with the applications of microprocessors and fiber optics. • develop skills necessary to work with others and solve problems. • understand and apply knowledge of direct current circuits and alternating current circuits as related to electrical technology. • demonstrate knowledge and understanding of fluid power systems. • demonstrate knowledge and understanding of programmable logic controllers and electrical motor controls. • demonstrate knowledge and understanding of rotating machinery. • develop personal and professional leadership skill through participation in the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate employability and social skills relative to careers.
<p style="text-align: center;">Connections</p> <p>Kentucky Tech Curriculum EIA—Electronics Industries of America Certification or other Certification Area Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)</p>	

Residential/Commercial Carpentry

Course Description: This program will teach students to perform to national construction industry standards. The program will include core building courses in residential and commercial blueprint reading, introduction to construction, construction safety, floor and wall framing, metal stud construction and heavy commercial construction. Upon completion of identified courses and meeting industry expectations, students will be issued a “competent worker certificate. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.1, 2.37 1.2 2.38 6.3 2.1, 2.7 1.10 2.17 6.2 2.36 2.18 2.36 2.19 2.36	Students will <ul style="list-style-type: none"> • develop core competencies in the areas of safety, residential/commercial blueprint reading, introduction to construction, floor and wall framing, metal studs, and heavy commercial construction. • develop competencies and skills in the area of site layout and foundations. • develop skills to be a competent and productive worker in the construction industry. • apply concepts from mathematics, science, and communications in the context of residential/commercial carpentry. • develop skills and competencies in the area of ceiling and roof framing. • demonstrate understanding and knowledge related to both residential and commercial materials, processes, techniques and applications. • develop skills necessary to work as part of a team to solve problems, and to develop and construct residential and commercial structures. • develop core competencies in construction safety and the efficient use of tools machines, materials, processes and applications. • develop career portfolios to keep a record of training, transcripts, and skills obtained during training. • develop skills and competencies related to workplace readiness and consumer economics. • develop personal and professional skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate skill necessary to work with others to solve problems. • demonstrate employability and social skills relative to careers.
Connections Associated General Contractors -AGC Craftworker Training Program NCCER Craft Training Program Professional Development Program Kentucky Homebuilders Craft Training Program Kentucky Tech Curriculum Secretary’s Commission on Achieving Necessary Skills (SCANS Skills)	

Telemedia Technology

Course Description: This program includes instruction in the operation of various audio/video equipment which includes studio equipment, control room equipment, editing equipment, and electronic field production equipment. Academic instruction includes course expectations, safety, occupational opportunities, job duties and responsibilities, and vocabulary. Leadership and professional development training shall be an integral part of this program and provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
1.10, 2.10 1.5 - 1.9 2.1 2.12 1.1, 5.3 1.16 5.1, 2.17 1.1, 6.3 1.12 2.17, 5.4 2.37, 2.38 2.36	Students will <ul style="list-style-type: none"> • develop an understanding and knowledge of television production concepts as related to the industry. • develop skills and demonstrate competencies in the operation of studio equipment . • demonstrate knowledge and understanding of audio/video control room equipment. • understand and apply skills necessary for efficient use and operation of editing equipment. • demonstrate skill and knowledge of the operation of electronic field production equipment. • develop knowledge and understanding of computer technology. • understand and demonstrate personal and professional skills through producing and directing of television programs. • develop an understanding of closed media transmission systems. • develop an understanding of broadcast transmission systems. • demonstrate team building competencies through analysis of television production values. • develop personal and professional leadership skill through participation with the Vocational Industrial Clubs of America (VICA) student organization activities. • demonstrate employability and social personal management skills related to careers through the Professional Development Program.
Connections Kentucky Tech Curriculum FCC rules, regulations and licensing standards Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Visual Communication Art Technology

Course Description: This program includes keyboarding, computer fundamentals, fundamentals of drawing, traditional layout and graphic design, and color theory applications. Also included are production art, traditional illustration, typography concepts, screen printing, creative typography applications, and computer graphic design. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
<div>2.3, 2.2</div> <div>1.16, 2.7</div> <div>2.22, 2.23</div> <div>2.22, 2.23</div> <div>2.25, 1.2</div> <div>1.2, 2.22</div> <div>2.22, 2.23,</div> <div>2.37, 5.1</div> <div>2.22, 2.23,</div> <div>1.13</div> <div>2.7, 5.1</div> <div>1.10</div> <div>2.37, 2.38</div> <div>2.36</div> <div>6.1, 6.3</div>	Students will <ul style="list-style-type: none"> • demonstrate knowledge and understanding of keyboarding operations and care of the equipment. • understand the use of a computer for word processing, spreadsheets, and databases. • develop the ability to “see” as an artist. • understand the three characteristics of color. • demonstrate knowledge of printing. • develop understanding and competencies in the use of the computer as an electronic drawing tool. • engage in meaningful, hands-on, minds-on, and conceptual based visual communication art activities. • develop workplace readiness and employability skills necessary to work with others, and reach an employable exit point. • develop competencies and skills in drawing and painting skills from developing ideas and concepts. • understand the elements and principles of design and development of studio skills. • demonstrate knowledge and understanding of the rules and uses of typography. • understand and apply concepts of advertising. • develop personal and professional leadership skills through VICA student organization activities. • demonstrate employability and social skills relative to careers. • apply concepts from mathematics, science, communications and computer skills in the context of visual communication arts.
<div style="text-align: center;">Connections</div> <div>Kentucky Tech Curriculum</div> <div>Professional Development Program</div> <div>Secretary’s Commission on Achieving Necessary Skills (SCANS Skills)</div>	

Welding

Course Description: This program includes blueprint reading for welding, industrial safety, gas tungsten arc welding, gas metal arc welding, and certification welding. Also included are oxy-fuel systems, oxy-fuel cutting, shielded metal arc welding, and shielded metal arc welding plate. Leadership and professionalism will be provided through VICA and the Professional Development Program.	
Academic Expectations	Content/Process
2.2, 6.1 1.10, 1.13 5.1, 2.3 5.5 2.5 2.17 1.1, 2.1 2.1, 6.3 5.5, 6.2 2.1, 2.37, 2.38 2.5, 2.1 2.1 1.2, 2.37 2.36	Students will <ul style="list-style-type: none"> understand and apply basic electricity concepts and knowledge as related to welding technology. demonstrate knowledge and skill in blueprint reading. develop competencies in the safe and efficient use of the tools, machines, materials and processes of welding technology. develop and demonstrate skills and knowledge with Gas Tungsten Arc Welding. develop and demonstrate skills and knowledge with Gas Metal Arc Welding. develop skills necessary to work with others and solve problems. apply concepts from mathematics, science, and communications in the context of welding technology. develop and demonstrate competencies in Plasma Arc Systems. demonstrate knowledge and competencies with Oxy-Fuel Systems. develop skill and understanding of Shielded Metal Arc Welding concepts and applications. develop personal and professional skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization activities. demonstrate knowledge and competencies in metallurgy of common metals used in welding trades. demonstrate knowledge and competencies of basic employability skills E9.1-E9.18 (Plan and organize work)(Demonstrate Ability)(AWS Standards) demonstrate career awareness and employment possibilities in the welding field including lifelong career paths such as boilermakers, military, CWE, CWI, college and certification programs. develop skill and understanding of automated welding systems.
Connections Kentucky Manufacturing Standards American Welding Society Certification (AWS Certification) Professional Development Program Kentucky Tech Curriculum Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

Wood Products Manufacturing

Course Description: This program will provide students with a variety of skills and abilities as related to the commercial wood products manufacturing industry. Content will include application of computers skills, cabinet making processes, materials and products, wood finishes and finishing techniques. The content will also provide experiences with furniture and mill work production and technical drawing and blue print reading. Leadership and professional development skills will be taught through participation in the VICA student organization and professional development program which will be an integral part of this program.	
Academic Expectations	Content/Process
6.3 5.5, 1.1 2.3 1.1, 2.1,2.7 1.2 6.2 2.37 2.36, 2.38 5.1, 2.10, 6.2, 1.3 1.16 2.36, 2,17	Students will <ul style="list-style-type: none"> • develop knowledge and skills applicable to the wood products manufacturing industry. • develop and apply skills in cabinet making technology and demonstrate the ability to apply cabinet making knowledge to a variety of materials, processes and products. • develop knowledge and understanding of wood finishes and applications. • apply concepts from mathematics, science, and communications within the context of wood products manufacturing. • develop skill and knowledge in technical drawing and blueprint reading. • develop knowledge and skills in the construction of furniture products. • complete a cooperative work experience within the wood products manufacturing industry. • develop personal and professional skills through involvement with the Vocational Industrial Clubs of America (VICA) student organization. • develop competencies in the safe and efficient use of tools, machines, materials and processes of wood products manufacturing. • acquire skill and knowledge of mill work technologies within the context of wood products manufacturing. • use computer fundamentals and computer aided drafting as related to wood product manufacturing. • demonstrate employability and social skills relative to careers.
Connections Kentucky Tech Curriculum Kentucky Manufacturing Skill Standards Professional Development Program Secretary's Commission on Achieving Necessary Skills (SCANS Skills)	

TECHNOLOGY EDUCATION

Course Title	Recommended Grade Level							Recommended Credit
	6	7	8	9	10	11	12	
Introduction to Communication	X	X	X	XX				1/2 *
Introduction to Production	X	X	X	XX				1/2 *
Introduction to Transportation	X	X	X	XX				1/2 *
Survey of Technology	X	X	X	XX				1/2 **
xx Only when 9 th grade is housed at the middle school *Credit is granted only when offered at the 9 th grade level **This course may be scheduled for 1 year or 2 semesters and credit granted only when offered at the 9 th grade level								
Overview of Technological Systems				X	X	X	X	2*
Production Systems				X	X	X	X	1
Communication Systems				X	X	X	X	1
Transportation Systems				X	X	X	X	1
Bio-Related Systems				X	X	X	X	1
Construction Technology					X	X	X	1
Drafting/Computer Assisted Design Technology					X	X	X	1
Electricity/Electronics Technology					X	X	X	1
Graphics Communications Technology					X	X	X	1
Manufacturing Technology					X	X	X	1
Special Problems in Technology Education					X	X	X	1

* This course may be scheduled for a two-hour period or offered for two years.

Overview of Technology Education

Technology education should enrich students' lives in school and beyond. It should assist students in learning to live with technology, while retaining their individual human identity in a world often dominated by technology. Technology education students should learn basic, conceptual content that endures, transcending time and specific application.

Technology education should be about learning to assess when, why, or even *if* technology should be used. These assumptions spring from a belief that, in order for students to fully develop and enhance their technological literacy, a quality technology education program should provide opportunities to

- P Apply a systems approach, 21st century skills (e.g., creative problem-solving, critical thinking, teamwork, leadership, acceptance of personal responsibility), and a variety of resources (including information, tools, and materials) to solve technical problems.*

- P Understand technological systems (e.g., communication, production, transportation, bio-related, and other emerging systems) and the interrelationship between the resource/input, process, output, and feedback elements of these systems.*
- P Use computer-based technologies to communicate, process, manipulate, collect, and apply information to solve technical problems.*
- P Integrate and apply concepts from mathematics, science, communication, social studies, and the arts in the context of contemporary technology.*
- P Develop competencies in the safe and efficient use of tools, machines, materials, and processes.*
- P Identify opportunities, characteristics, and preparation requirements for current and emerging technological occupations.*
- P Engage in meaningful, hands-on, minds-on, and conceptual technology-based activities.*
- P Become discriminating consumers of technological products and services.*
- P Explore entrepreneurship and its place within the free enterprise system as a means to becoming a self-sufficient individual.*
- P Become participating citizens who can understand, assess, predict, control, and adapt to the impacts and consequences of technology on individuals, society, and the environment.*
- P Understand and appreciate both the importance and the dynamic nature of technology.*

Technology education should be a program in which the disciplines of science, mathematics, social studies, environmental science, history, and philosophy can be integrated and *applied*, allowing students to discover their relevance and meaning in real-world contexts and applications. This has been translated to describe technology education as activity-based instruction offered at the elementary, middle, and high school levels that (a) provides students opportunities to learn about technologies and technological systems that impact society; (b) derives its content from curriculum organizers identified as communications, production, transportation, and bio-related topics; and (c) is an integral part of a comprehensive school program.

Because technology education can be designed with at least three levels of emphasis and from many perspectives, schools may offer courses that focus on a broad spectrum of student interests and needs, ranging from introduction to exploration to preparation levels. This broad focus allows technology education programs to adapt to an ever-changing community and technological environment.

Technology education includes programs offered at the elementary, middle, and high school levels that provide students with opportunities to learn about technological systems and their impact on society's wants and needs.

Technology education derives its content from curriculum organizers identified as *production, communications, transportation, and bio-related topics*.

Classroom activities focus on materials, information, and systems—with students investigating, devising, communicating, and producing products. Students develop and apply criteria in the development of a product. Portfolio assessment strategies may be used in the assessment process. Technology education is an integral part of each school's comprehensive program, which directly supports Kentucky's Learning Goals and Academic Expectations as specified by the Kentucky Education Reform Act (KERA) of 1990.

Elementary School Program. Technology education at the elementary school level takes an integrated approach. At this level students are made aware of technology and its impact on the world around them. Students explore technology through age-appropriate, hands-on, minds-on activities that include problem solving, creative and critical thinking, and working in teams within thematic units. Implementation of technology education at the elementary school level is best achieved through consultation among elementary and technology education teachers.

Middle School Program. Technology education programs in the middle school provide opportunities for awareness, exploration, and application in the different systems of production, communication, transportation, and bio-related technologies. Instructional approaches typically include the problem solving/design brief using the small/large group instruction or through the modular approach.

A technology education (middle school) subject is generally offered for six to eighteen weeks for a single class period each day. Alternative schedules that provide for equivalent contact hours may also be implemented. A total program of technology education consists of a minimum of two course offerings; however, the technology survey course alone will meet the two course offering requirement if it is offered to students more than once.

High School Program. Technology education at the high school level is a broad-based program that provides students with a foundation in the four technological systems of production, communication, transportation, and bio-technology. The program emphasizes the problem solving and critical thinking skills appropriate for all students. Activities in the high school technology education program are designed to make scientific principles relevant by requiring students to apply them to real problems in an activity based learning environment.

Alternative schedules may be implemented that provide for equivalent contact hours. A total program of technology education consists of a minimum of two different course offerings; however, the overview of technology course alone will meet the two course offering requirement if offered to students more than once. Technology education programs may also be offered at the area vocational center, provided a certified technology education teacher teaches the courses.

All programs are required to make provisions to meet the needs of disadvantaged and disabled students. If the nature and severity of the disadvantage or disability is such that the student cannot benefit from program participation, a separate or modified program may be developed. In either case, the program provided shall be consistent with and specified in each special needs student's Individualized Education Program Plan (IEP). The extensive use of laboratory equipment in technology programs may require the provision of teacher aides to assist disabled students (if identified as a component of the IEP).

Student organizations are an integral component of a technology education program. The student organization shall encompass activities associated with program content, provide leadership opportunities, recognize skill development, and enrich the education program through student motivation and group activities. It is recommended that technology education programs be represented by the Technology Student Association (TSA). Districts seeking vocational funding for technology education programs at the high school level are required to include the student organization (TSA) as an integral part of the instructional program.

Technology education courses develop and enhance students' technological literacy or understanding of how technological systems function and impact society, the environment, and the global economy. Technology education is activity based and includes topics related to invention, intervention, and innovation. Technology education addresses individual rights and responsibilities. It provides opportunities for students to understand technology's impact on their lives. Technology education will enable students to manage and cope with change. Students learn to apply tools, materials, processes and concepts efficiently as these relate to technology. In addition, students develop and apply creative problem solving techniques and critical thinking skills as they apply their knowledge of science, mathematics, and communication to solve realistic problems. Students become wise consumers of technology. They become aware of the multitude of careers and make intelligent career choices. Technology education should be available to all students. Although course content is sequential, no prerequisites are required in the program.

Technology education must perpetuate its willingness to change as necessary to meet the ever-changing needs of society. The recommended course descriptions in this Framework are responsive to current needs while remaining flexible enough to address the inevitable changes that will occur before the next revision. This latitude is not only intentional but essential. It allows for the professional (certified technology education teacher) educator to address changing societal needs. Where opportunities exist, technology education courses may articulate with industrial education level III, based upon agreement of all parties involved.

Survey of Technology

<p>Course Description: Survey of Technology is a broad based laboratory course that explores topics from the technological systems (production, communication, transportation, bio-related). This course provides study and analysis of materials, products, problems, uses, and developments relative to the technological world. This can be accomplished by a problem solving/design brief using small/large group instruction and/or through the modular approach. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.</p>	
Academic Expectations	Content/Process
<p>Students will</p> <p>1.1, 6.3 2.20, 2.1</p> <p>1.11, 2.2 2.20, 6.2</p> <p>2.16, 1.2</p> <p>1.16, 2.1</p> <p>5.1</p> <p>5.2</p> <p>5.3</p> <p>5.1</p> <p>1.16, 5.5</p> <p>2.15, 5.4</p> <p>1.16</p> <p>2.17 2.37, 2.38</p> <p>6.2, 6.3</p>	<ul style="list-style-type: none"> • define technology. • identify and become aware of ways technology has been used to meet human needs in the home, school, community, and workplace. • use technological terminology correctly. • describe intended and unintended consequences of the application of technological solutions to a variety of problems and identify appropriate and inappropriate applications of technology. • evaluate the consequences of technological inventions and innovations on people, society, culture, and the environment. • analyze current and emerging issues (e.g., ethical, social, legal, environmental, political, and privacy) related to technology. • explore technological concepts and processes in the contexts of communication, transportation, production, bio-related, and emerging technological systems. • apply core knowledge and technological concepts to solve technical problems. • develop and use problem solving and decision making skills to invent, design, and modify devices and systems. • effectively and safely use tools, machines and materials. • gather, analyze, and communicate technical information by measuring, reading, and analyzing drawings and other technical sources. • develop technical writing skills using appropriate forms, conventions and styles to communicate ideas and information to diverse audiences for many purposes. • understand that computers and software are versatile tools used to collect, organize, process, and communicate information and ideas. • demonstrate employability and social skills relative to careers. • develop personal and professional leadership through participation in KTSA. • apply concepts from mathematics, science, and communications in the context of technology education.
<p style="text-align: center;">Connections</p> <p>KTSA—Kentucky Technology Student Association Technology Education Teacher Resource Kit and SCANS Skills</p>	

Introduction to Transportation

<p>Course Description: Introduction to Transportation is a broad based laboratory course that explores methods used to move people and products. Four domains are addressed: terrestrial, marine, atmosphere, and space. This can be accomplished by a problem solving/design brief using small/large group instruction or the modular approach. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.</p>	
Academic Expectations	Content/Process
<p>1.3, 2.20</p> <p>1.11, 2.2</p> <p>2.20, 5.5</p> <p>2.16, 6.2</p> <p>1.16, 6.3</p> <p>5.1, 5.5</p> <p>5.5</p> <p>1.16</p> <p>2.1, 5.3</p> <p>2.17</p> <p>2.36</p> <p>2.37</p> <p>2.17</p> <p>2.37</p> <p>2.38</p> <p>6.2, 6.3</p>	<p>Students will</p> <ul style="list-style-type: none"> • identify and become aware of ways transportation-related technology has been used to meet human needs in the home, school, community, and workplace. • describe intended and unintended consequences of the application of technological solutions to a variety of problems and identify appropriate and inappropriate applications of transportation technology. • evaluate the consequences of transportation-related technological inventions and innovations on people, society, culture, and the environment. • analyze current and emerging issues (e.g., ethical, social, legal, environmental, political, and privacy) related to transportation technology. • apply core knowledge and technological concepts to solve technical problems in transportation. • develop and use problem solving and decision making skills to invent, design, and modify transportation devices and systems. • effectively and safely use tools, machines, and materials. • understand that computers and software are versatile tools used to collect, organize, process, and communicate information and ideas. • identify and analyze transportation-related technological systems and sub-systems and their interaction. • interact effectively and work cooperatively with persons from diverse ethnic and cultural backgrounds. • identify opportunities, characteristics, and preparation requirements for current and emerging occupations in transportation-related industries. • develop strategies and work habits that will lead to success and prepare the student for a future in a technological world. • effectively use interpersonal and productive team member skills. • demonstrate employability and social skills relative to careers. • develop personal and professional leadership skills through participation in KTSA student organization activities. • apply concepts from mathematics, science, and communications in the context of technology education.
<p style="text-align: center;">Connections</p> <p>Kentucky Technology Student Association (KTSA)</p> <p>SCANS Skills</p> <p>Technology Education Teacher Resource Kit</p>	

Introduction to Communication

<p>Course Description: Introduction to Communication is a broad based laboratory course that explores the processes and techniques of encoding, transmitting, receiving, storing, retrieving, and decoding graphic and electronic information. This can be accomplished by a problem solving/design brief using small/large group instruction or through the modular approach. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.</p>	
Academic Expectations	Content/Process
<p>2.7, 2.8</p> <p>1.16, 6.2</p> <p>1.1, 1.2</p> <p>1.16,6.2</p> <p>1.16, 1.1</p> <p>1.1</p> <p>1.11, 2.2</p> <p>2.20, 6.2</p> <p>2.20, 2.16</p> <p>1.16, 2.1</p> <p>5.1, 6.3</p> <p>5.5</p> <p>5.4</p> <p>2.15, 5.4</p> <p>2.38</p>	<p>Students will</p> <ul style="list-style-type: none"> gather information and communicate by measuring, reading, and analyzing drawings. explore available information technologies, their functions and capabilities. develop technical writing skills using appropriate forms, conventions and styles to communicate ideas and information to different audiences for different purposes. make sense of and communicate ideas through state of the art technologies. use computers and other kinds of technology to collect, organize and communicate information and ideas. use communication technology terminology correctly. describe intended and unintended consequences of the application of technological solutions to a variety of problems and identify appropriate and inappropriate applications of communication technology. evaluate the consequences of communication-related technological inventions and innovations on people, society, culture, and the environment. analyze current and emerging issues (e.g., ethical, social, legal, environmental, political, and privacy) related to communication technology. apply core knowledge and technological concepts to solve technical problems in communication. develop and use problem solving and decision making skills to invent, design, and modify communication devices and systems. effectively and safely use tools, machines, and materials. demonstrate employability and social skills relative to careers. develop personal and professional leadership through participation in KTSA. apply concepts from mathematics, science, and communications in the context of technology education.
<p style="text-align: center;">Connections</p> <p>Kentucky Technology Student Association (KTSA)</p> <p>SCANS Skills</p> <p>Technology Education Teacher Resource Kit</p>	

Introduction to Production

<p>Course Description: Introduction to Production is a broad based laboratory course that explores content related to performing production processing, constructing, and manufacturing operations. The course also uses technical means to construct resources into goods, standard stocks, and structures. This can be accomplished by a problem solving/design brief using small/large group instruction or through the modular approach. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.</p>	
Academic Expectations	Content/Process
<p>2.7, 2.8</p> <p>1.16, 5.5,</p> <p>1.3, 2.20</p> <p>1.11, 2.2</p> <p>2.20, 6.2</p> <p>2.20, 2.16</p> <p>1.16, 6.3</p> <p>5.5, 6.3</p> <p>5.5</p> <p>2.38</p> <p>2.18, 2.16</p> <p>2.36, 2.15</p> <p>2.37, 2.38</p> <p>2.29</p> <p>6.2, 6.3</p>	<p>Students will:</p> <ul style="list-style-type: none"> gather information and communicate by creating, measuring, reading, and analyzing drawings. use computers and other kinds of technology to collect, organize and communicate information and ideas. identify and become aware of ways production-related technology has been used to meet human needs in the home, school, community and workplace. describe intended and unintended consequences of the application of technological solutions to a variety of problems and identify appropriate and inappropriate applications of production technology. evaluate the consequences of production-related technological inventions and innovations on people, society, culture, and the environment. analyze current and emerging issues (e.g., ethical, social, legal, environmental, political, and privacy) related to production technology. apply core knowledge and technological concepts to solve technical problems in production. develop and use problem solving and decision making skills to invent, design, and modify production devices and systems. effectively and safely use tools, machines, and materials. develop personal and professional leadership skills through participation in Kentucky Technology Student Association (KTSA) student organization activities. understand the dynamic nature of production technology and analyze and interpret historical events, conditions, trends and issues to develop perspective on the impacts of production of goods and structures on people, society, culture, and the environment. identify opportunities, characteristics, and preparation requirements for current and emerging occupations in production-related industries. develop strategies and work habits that will lead to success and prepare the student for a future in a technological world. demonstrate employability and social skills relative to careers. apply concepts from mathematics, science, and communications in the context of technology education.
<p style="text-align: center;">Connections</p> <p>Kentucky Technology Student Association (KTSA) Technology Education Teacher Resource Kit, and SCANS Skills</p>	

Overview of Technological Systems

<p>Course Description: Overview of Technological Systems is offered to students who have not had courses in the study of technology at the middle school. This course includes the introduction, exploration, and application of topics from technology and the development of technological systems. These courses may be conducted by a problem solving/design brief using small/large group instruction and/or through the modular approach. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.</p>	
Academic Expectations	Content/Process
<p>1.2, 1.11</p> <p>1.1-1.3</p> <p>2.16,2.18</p> <p>1.1-1.4</p> <p>2.3</p> <p>6.1, 6.3</p> <p>1.16 2.17</p> <p>2.36-2.38</p> <p>5.1-5.5</p> <p>2.37, 5.4</p> <p>2.17</p> <p>2.38</p> <p>6.2, 6.3</p>	<p>Students will</p> <ul style="list-style-type: none"> • define technology. • evaluate the consequences of technological inventions and innovations on people, society, culture, and the environment. • analyze current and emerging issues (e.g., ethical, social, legal, environmental, political, and privacy) related to technology. • explore technological concepts and processes in the contexts of communication, transportation, production, bio-related, and emerging technological systems. • apply core knowledge and technological concepts to solve technical problems. • understand the dynamic nature of technology and analyze and interpret historical events, conditions, trends and issues to develop perspective on the impacts of technology on people, society, culture, and the environment. • identify opportunities, characteristics, and preparation requirements for current and emerging technological occupations. • develop strategies and work habits that will lead to success and prepare the student for a future in a technological world. • understand technological systems (e.g., communication, production, transportation, bio-related and other emerging systems) and the interrelationship between the resource/input, process, output, and feedback elements of these systems. • develop competencies in the safe and efficient use of tools, machines, materials, and processes. • demonstrate employability and social skills relative to careers. • develop personal and professional leadership skills through participation in Kentucky Technology Student Association (KTSA) student organization activities. • apply concepts from mathematics, science, and communications in the context of technology education.
<p style="text-align: center;">Connections</p> <p>Kentucky Technology Student Association (KTSA) Technology Education Teacher Resource Kit SCANS Skills</p>	

Communication Systems

<p>Course Description: Communication Systems is the study of the communication of ideas through graphic representation and electronic technologies. The focus of this course includes the processes and techniques of encoding, transmitting, receiving, storing, retrieving, and decoding graphic and electronic information. Communication concepts are reinforced through the development of products using and exploration in areas such as: graphics, electronic communications, photography and computer applications. Opportunities are provided to apply problem solving and critical thinking skills through the development of a product. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.</p>	
Academic Expectations	Content/Process
<p>6.2, 1.11</p> <p>1.3, 6.2</p> <p>2.36</p> <p>1.1</p> <p>1.13</p> <p>5.1, 6.2</p> <p>1.16</p> <p>2.35, 2.17</p> <p>2.31</p> <p>2.36, 2.38</p> <p>6.2</p> <p>2.15, 5.4</p> <p>6.2, 6.3</p>	<p>Students will</p> <ul style="list-style-type: none"> • understand and appreciate both the importance and the dynamic nature of communication technologies. • understand the concept of appropriate technologies as it relates to multi-cultural and global perspectives. • identify opportunities, characteristics, and preparation requirements for current and emerging communication technology-related occupations. • explore and experience the organization and management structure of communication-related industries. • apply core knowledge and technological concepts. • develop creative problem-solving, critical thinking, teamwork, leadership and personal responsibility skills through collaborative application of communication technologies and the solution of technical problems. • use computer-based technologies to communicate, process, manipulate, collect, and apply information to solve technical problems in communication. • apply the systems approach to analyze and solve communication systems-based technical problems. • demonstrate proficiency in the safe and efficient use and care of equipment, materials, processes, and concepts related to the applications of communications systems technologies. • develop personal and professional leadership skills through participation in Kentucky Technology Student Association activities. • develop skills necessary to work effectively with others to solve problems and make decisions involving human and material resources, processes, and communication related technological systems. • demonstrate employability and social skills relative to careers. • apply concepts from mathematics, science, and communications in the context of technology education.
<p style="text-align: center;">Connections</p> <p>Kentucky Technology Student Association (KTSA)</p> <p>Technology Education Teacher Resource Kit and SCANS Skills</p>	

Bio-Related Systems

Course Description: Bio-Related Systems is a broad based course taught in a laboratory setting. Its content is derived from the integration of biological concepts and principles within the field of technology. The focus of this course includes the processes and techniques of propagating, growing, maintaining, harvesting, adapting, treating, and converting biological organisms in the contexts of agriculture, medicine, and biological processes tied to production. The goal of bio-technology is to improve the quality of life through design and development. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.	
Academic Expectations	Content/Process
2.6, 1.11 6.3 2.36 1.1 6.2, 6.3 5.1, 5.5 1.16 2.3,5.1 1.3, 1.1 2.31, 2.36 2.37, 2.38 2.17 2.17 6.2, 6.3	Students will <ul style="list-style-type: none"> understand and appreciate both the importance and the dynamic nature of bio-related technologies. engage in meaningful, hands-on, minds-on and conceptual activities to apply bio-related concepts, processes, and systems. identify opportunities, characteristics, and preparation requirements for current and emerging bio-related technology occupations. explore and experience the organization and management structure of bio-related technology based industries. integrate and apply core knowledge and technological concepts. integrate and develop creative problem-solving, critical thinking, teamwork, leadership and personal responsibility skills through collaborative application of bio-related technologies and the solution of technical problems. use computer-based technologies to communicate, process, manipulate, collect, and apply information to solve technical problems in bio-related technologies. apply the systems approach to analyze and solve bio-related technology systems-based technical problems. observe and explore the interrelationships between and among bio-related technology systems and other technological systems. demonstrate proficiency in the safe and efficient use and care of equipment, materials, processes, and concepts related to the applications of bio-related technologies. develop personal and professional leadership skills through participation in Kentucky Technology Student Association activities. develop skills necessary to work effectively with others to solve problems and make decisions involving human and material resources, processes, and bio-related technological systems. demonstrate employability and social skills relative to careers. apply concepts from mathematics, science, and communications in the context of technology education.
Connections Kentucky Technology Student Association (KTSA) SCANS Skills Technology Education Teacher Resource Kit	

Transportation Systems

Course Description: Transportation Systems is a broad based course, taught in a laboratory setting, that encompasses how people and products are moved within a society. The focus of this course includes the processes and techniques of receiving, holding/storing, loading, moving, unloading, and delivering people and products. Transportation is examined in the four environments in which it occurs: terrestrial, marine, atmosphere, and space. Specific areas of study include types of vehicles, engineering and design of transportation systems, use of general tool and material processes and how transportation technology impacts social, economic, environmental, and cultural aspects of our world. Opportunities are provided to apply problem solving and critical thinking skills through the development of a product. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.

Academic Expectations	Content/Process
<p>1.1, 1.11</p> <p>1.3, 6.2</p> <p>2.36</p> <p>6.1</p> <p>6.3</p> <p>5.1, 5.5</p> <p>1.16</p> <p>2.3, 5.1</p> <p>2.31</p> <p>5.1, 6.2</p> <p>2.37, 2.38</p> <p>2.17, 5.4</p> <p>6.2, 6.3</p>	<p>Students will</p> <ul style="list-style-type: none"> engage in meaningful, hands-on, minds-on and conceptual activities to apply transportation-related concepts, processes, and systems. understand the concept of appropriate technologies as it relates to multi-cultural and global perspectives. identify opportunities, characteristics, and preparation requirements for current and emerging transportation technology-related occupations. explore and experience the organization and management structure of transportation-related industries. apply core knowledge and technological concepts. develop creative problem-solving, critical thinking, teamwork, leadership and personal responsibility skills through collaborative application of transportation technologies and the solution of technical problems. use computer-based technologies to communicate, process, manipulate, collect, and apply information to solve technical problems in transportation. apply the systems approach to analyze and solve transportation systems-based technical problems. demonstrate proficiency in the safe and efficient use and care of equipment, materials, processes, and concepts related to the applications of transportation systems technologies. develop skills necessary to work effectively with others to solve problems and make decisions involving human and material resources, processes, and transportation related technological systems. develop personal and professional leadership skills through participation in Kentucky Technology Student Association activities. demonstrate employability and social skills relative to careers. apply concepts from mathematics, science, and communications in the context of technology education.
<p style="text-align: center;">Connections</p> <p>Kentucky Technology Student Association (KTSA) Technology Education Teacher Resource Kit SCANS Skills</p>	

Production Systems

<p>Course Description: Production Systems is a laboratory course that involves the design and production of a product, with a focus on the processes and techniques of primary procession, constructing, manufacturing, and maintaining. The course will include the study and application of materials, tools, and machines necessary for manufacturing and/or construction processes. Related systems are studied to include the organization of work and factors influencing our economy. Opportunities are provided to apply problem solving and critical thinking skills through the development of a product. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.</p>	
Academic Expectations	Content/Process
<p>5.4, 2.11</p> <p>2.6</p> <p>6.3</p> <p>1.3, 6.2</p> <p>2.36</p> <p>1.1</p> <p>6.2</p> <p>5.1, 5.5</p> <p>1.16</p> <p>2.36, 2.38</p> <p>2.31</p> <p>6.2</p> <p>2.17</p> <p>6.2, 6.3</p>	<p>Students will</p> <ul style="list-style-type: none"> • explore entrepreneurship and its place within the free enterprise system as a means to becoming a self-sufficient individual. • understand and appreciate both the importance and the dynamic nature of production technologies. • engage in meaningful, hands-on, minds-on and conceptual activities to apply production-related concepts, processes, and systems. • understand the concept of appropriate technologies as it relates to multi-cultural and global perspectives. • identify opportunities, characteristics, and preparation requirements for current and emerging production technology-related occupations. • explore and experience the organization and management structure of production-related industries. • apply core knowledge and technological concepts. • develop creative problem-solving, critical thinking, teamwork, leadership and personal responsibility skills through collaborative application of production technologies and the solution of technical problems. • use computer-based technologies to communicate, process, manipulate, collect, and apply information to solve technical problems in production. • develop personal and professional leadership skills through participation in Kentucky Technology Student Association (KTSA) activities. • demonstrate proficiency in the safe and efficient use and care of equipment, materials, processes, and concepts related to the applications of production systems technologies. • develop skills necessary to work effectively with others to solve problems and make decisions involving human and material resources, processes, and production related technological systems. • demonstrate employability and social skills relative to careers. • apply concepts from mathematics, science, and communications in the context of technology education.
<p style="text-align: center;">Connections</p> <p>Kentucky Technology Student Association (KTSA) Technology Education Teacher Resource Kit SCANS Skills</p>	

Special Problems

<p>Course Description: Special Problems is a laboratory based course designed to allow the high school student to explore in-depth a recent technological advancement and how this advancement will or could affect society. A culminating project involving other course work is encouraged to include research, analysis, projecting, writing, and presenting. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.</p>	
Academic Expectations	Content/Process
<p>1.1, 6.3</p> <p>1.13, 1.11</p> <p>2.3, 5.1</p> <p>6.2, 2.17</p> <p>1.16, 2.36</p> <p>2.1</p> <p>2.31</p> <p>6.3, 5.1</p> <p>6.2</p> <p>2.19</p> <p>2.36, 2.38</p> <p>2.17, 5.4</p> <p>6.2, 6.3</p>	<p>Student will</p> <ul style="list-style-type: none"> • develop a culminating project, demonstrating the student's knowledge, and intellectual/technological skills and expertise. • demonstrate communication skills through presentations, reports, and demonstration. • apply a systems approach, research skills, 21st century skills (e.g., creative problem-solving, critical thinking, teamwork, leadership, acceptance of personal responsibility), and a variety of resources including information, tools and materials to the resolution of a work-based or community based problem. • demonstrate a thorough understanding of technological systems and their interrelationships. • use computer based technologies to communicate, process, manipulate, collect, and apply information to solve technical problems. • integrate and apply concepts from mathematics, science, communication, social studies, and the arts in the context of contemporary technology. • demonstrate competencies in the safe and efficient use of tools, machines, materials, and processes. • engage in meaningful, hands-on, minds-on, and conceptual technology-based activities. • demonstrate an understanding of entrepreneurship and its place within the free enterprise system as a means to becoming a self-sufficient individual. • demonstrate that they have become participating citizens who can understand, assess, predict, control and adapt to the impacts and consequences of technology on individuals, society and the environment. • develop personal and professional leadership skills through participation in Kentucky Technology Student Association activities. • demonstrate employability and social skills relative to careers. • apply concepts from mathematics, science, and communications in the context of technology education.
<p style="text-align: center;">Connections</p> <p>Kentucky Technology Student Association SCANS Skills Technology Education Teacher Resource Kit</p>	

Construction Technology

<p>Course Description: Construction Technology is a broad based course taught in a laboratory setting. The course emphasizes the construction of a product, which includes the study of structural design and engineering, structural building techniques, and the organization of a construction enterprise and its impact upon the environment. Opportunities are provided to apply problem solving and critical thinking skills through the development of a product. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.</p>	
Academic Expectations	Content/Process
<p>2.20, 1.1</p> <p>5.5, 1.11</p> <p>2.31, 5.1</p> <p>1.2, 1.3</p> <p>5.2</p> <p>1.2, 6.3</p> <p>5.1</p> <p>1.2, 1.3</p> <p>1.2, 6.2</p> <p>6.2, 2.17</p> <p>6.2, 6.3</p> <p>2.36, 2.38</p> <p>2.17, 5.4</p> <p>6.2, 6.3</p>	<p>Students will</p> <ul style="list-style-type: none"> • develop an awareness of the significance of construction technology in the past, present, and future. • apply individual and group problem solving skills in construction technology. • develop responsible and safe work attitudes and the ability to function as a member of a team. • develop an understanding of construction technology and all its sub-systems. • use and adapt current and emerging construction materials and techniques. • develop an understanding of structural design and the engineering necessary to construct a safe efficient structure. • use critical thinking skills to design a structure utilizing appropriate applications of technologies. • appreciate, understand, and perform selected management practices in planning, organizing, and controlling as they relate to the construction enterprise and its related activities. • appreciate and understand the interrelationships within and between management, personnel, and production practices. • understand the relationship between construction technology, community development and the environment., • develop a culminating project, drawing upon the student's knowledge and experiences in construction technology. • develop personal and professional leadership skills through participation in Kentucky Technology Student Association activities. • demonstrate employability and social skills relative to careers. • apply concepts from mathematics, science, and communications in the context of technology education.
<p style="text-align: center;">Connections</p> <p>Kentucky Technology Student Association</p> <p>SCANS Skills</p> <p>Technology Education Teacher Resource Kit</p>	

Drafting/Computer Assisted Design Technology

<p>Course Description: Drafting/Computer Assisted Design Technology is a comprehensive, laboratory based course which includes the fundamentals of drafting. Sketching, board drafting, and computer applications in drafting and design will be emphasized. Students will use design briefs to solve drafting related problems in the four technology systems. Opportunities are provided to apply problem solving and critical thinking skills through the development of a product. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.</p>	
Academic Expectations	Content/Process
<p>6.1, 6.3, 1.16, 1.11</p> <p>2.31, 1.16</p> <p>2.36, 2.17</p> <p>6.3, 2.36</p> <p>1.1, 5.14</p> <p>6.2, 2.38</p> <p>6.2</p> <p>5.1, 5.5</p> <p>2.36, 2.38</p> <p>1.13</p> <p>6.2</p> <p>2, 6.3</p> <p>2.17, 5.4</p> <p>6.2, 6.3</p>	<p>Students will</p> <ul style="list-style-type: none"> • apply core knowledge in the context of drafting/computer assisted design. • use computer based technologies to communicate, process, manipulate, collect, and apply information to solve technical problems. • develop competencies in the safe and efficient use of the tools, machines, materials, and processes of drafting/computer assisted design • identify opportunities, characteristics, and preparation requirements for current and emerging occupations in drafting/computer assisted design. • engage in meaningful, hands-on, minds-on, and conceptual technology-based activities. • explore entrepreneurship and its place within the free enterprise system as a means to becoming a self-sufficient individual. • become participating citizens who can understand, assess, predict, control and adapt to the impacts and consequences of drafting/computer assisted design technology on individuals, society and the environment. • understand the concepts of drafting/computer assisted design. • develop and apply problem solving, critical thinking skills and creativity to drafting/computer assisted design problems. • develop personal and professional leadership skills through participation in Kentucky Technology Student Association activities. • communicate ideas through application of drafting fundamentals (e.g., sketching, multi-view drawings, 3D renderings). • experience and develop an understanding of the different sub-specialties within drafting/computer assisted design (e.g., mechanical, architectural, electrical). • apply knowledge and experiences from drafting/computer assisted design to produce a culminating project. • demonstrate employability and social skills relative to careers. • apply concepts from mathematics, science, and communications in the context of technology education.
<p style="text-align: center;">Connections</p> <p>Kentucky Technology Student Association SCANS Skills Technology Education Teacher Resource Kit</p>	

Graphic Communications Technology

<p>Course Description: Graphic Communications Technology is a broad based technological program that deals with tools, techniques, knowledge, the sending/receiving of messages and other technical processes unique to the area of communications technology. This course includes an overview of each process and proceeds to individual exploration, examination, experimentation and evaluation of different graphic communication processes. Opportunities are provided to apply problem solving and critical thinking skills through the development of a product. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.</p>	
Academic Expectations	Content/Process
<p>1.16, 1.11</p> <p>6.1</p> <p>2.31</p> <p>2.36, 6.1</p> <p>6.3</p> <p>2.30, 1.16</p> <p>2.36, 2.38</p> <p>1.13, 2.36</p> <p>1.16, 5.2</p> <p>5.1, 5.2</p> <p>5.3</p> <p>1.11, 1.13</p> <p>1.13, 1.15</p> <p>1.13</p> <p>2.17, 5.4</p> <p>6.2, 6.3</p>	<p>Students will</p> <ul style="list-style-type: none"> • use computer based technologies to communicate, process, manipulate, collect, and apply information to solve technical problems in graphic communication. • apply concepts from mathematics, science, communication, social studies, and the arts in the context of contemporary graphic communication technology. • develop competencies in the safe and efficient use of the tools, machines, materials, and processes of graphic communication. • identify opportunities, characteristics, and preparation requirements for current and emerging occupations in graphic communications. • engage in meaningful, hands-on, minds-on, and conceptual technology-based activities. • become discriminating consumers of graphic communications products and services. • develop personal and professional leadership skills through participation in Kentucky Technology Student Association activities. • communicate visually using new and traditional graphic communication tools, techniques and materials. • produce a document using the computer and desktop publishing software as tools. • create and process photographic images using both traditional camera/film technology and computer acquisition/enhancement technology. • produce a product applying the offset printing process. • write, develop, edit, and produce an effective video message. • animate a visual image. • convey a message through application of traditional and emerging screen printing processes. • demonstrate employability and social skills relative to careers. • apply concepts from mathematics, science, and communications in the context of technology education.
<p style="text-align: center;">Connections</p> <p>Kentucky Technology Student Association Technology Education Teacher Resource Kit and SCANS Skills</p>	

Manufacturing Technology

Course Description: Manufacturing Technology is a broad based course taught in a laboratory setting. Its content includes the study of and use of the materials, processes, tools, and machines associated with manufacturing systems. The content also includes product research, design and engineering, as well as organization, operation, and management of a manufacturing enterprise. Opportunities are provided to apply problem solving and critical thinking skills through the development of a product. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.	
Academic Expectations	Content/Process
6.1, 1.11 2.31, 1.16 2.36 6.3, 2.17 2.30, 2.36 1.1, 2.37 6.1, 6.2 2.31 5.1, 5.2 2.36, 2.38 6.2 1.2 6.2 2.17, 5.4 6.2, 6.3	Students will <ul style="list-style-type: none"> • apply concepts from mathematics, science, communication, social studies, and the arts in the context of contemporary manufacturing technology. • develop competencies in the safe and efficient use of the tools, machines, materials, and processes of manufacturing. • identify opportunities, characteristics, and preparation requirements for current and emerging occupations in manufacturing. • engage in meaningful, hands-on, minds-on, and conceptual technology-based activities. • become discriminating consumers of products and services. • explore entrepreneurship and its place within the free enterprise system as a means to becoming a self-sufficient individual. • demonstrate knowledge of the processes, materials, tools, and machines utilized in modern manufacturing. • demonstrate proficiency in the safe and efficient use and care of equipment, materials, processes and concepts used in modern manufacturing applications. • use problem solving and critical thinking skills to identify, evaluate and produce appropriate solutions to specific manufacturing problems. • develop personal and professional leadership skills through participation in Kentucky Technology Student Association activities. • understand the function of the manufacturing enterprise as managing resources and processes to research, design, produce and sell products with the goal of making profit. • demonstrate a thorough understanding of the design and production processes related to manufacturing. • demonstrate skill in reading and applying information contained in technical drawings, technical literature and design briefs. • develop skills necessary to work with others to solve problems. apply concepts from mathematics, science, and communications in the context of technology education.
Connections Kentucky Technology Student Association (KTSA) Technology Education Teacher Resource Kit and SCANS Skills Kentucky Manufacturing Skill Standards	

Electricity/Electronics Technology

<p>Course Description: Electricity/Electronics Technology is a broad based survey course taught in a laboratory setting. Its content includes AC/DC circuit design, solid state devices and circuit analysis, digital and microprocessor fundamentals, and communication electronics. Circuits are constructed and electrical quantities are calculated and measured. Opportunities are provided to apply problem solving and critical thinking skills through the development of a product. Participation in the Kentucky Technology Student Association (KTSA) will also be an integral part of this course.</p>	
Academic Expectations	Content/Process
<p>6.1, 1.11</p> <p>2.31, 1.16</p> <p>2.36</p> <p>6.3, 2.17</p> <p>2.30, 2.36 2.14, 2.37</p> <p>6.2, 2.38</p> <p>5.1, 6.1</p> <p>2.8, 2.10 6.2 6.2, 6.3</p> <p>2.36, 2.38</p> <p>2.17, 5.4</p>	<p>Students will</p> <ul style="list-style-type: none"> • apply concepts from mathematics, science, communications, in the context of contemporary electricity/electronics. • develop competencies in the safe and efficient use of the tools, machines, materials, and processes of electricity/electronics. • identify opportunities, characteristics, and preparation requirements for current and emerging occupations in electricity/electronics. • engage in meaningful, hands-on, minds-on, and conceptual technology-based activities. • become discriminating consumers of electrical products and services. • explore entrepreneurship and its place within the free enterprise system as a means to becoming a self-sufficient individual. • become participating citizens who can understand, assess, predict, control and adapt to the impacts and consequences of electricity/electronics technology on individuals, society and the environment. • contrast and analyze circuits in digital, microprocessor, and communication electronics. • calculate and measure values of the components in electrical circuits. • apply the principles of electricity/electronics. • apply electricity/electronics principles and techniques, core knowledge and problem solving and critical thinking skills to the development of a culminating project. • develop personal and professional leadership skills through participation in Kentucky Technology Student Association activities. • demonstrate employability and social skills relative to careers.
<p style="text-align: center;">Connections</p> <p>Kentucky Technology Student Association (KTSA) SCANS Skills Technology Education Teacher Resource Kit</p>	

MARKETING EDUCATION

Course Title	Recommended Grade Level						Recommended Credit*
	7	8	9	10	11	12	
Business Economics**			x	x	x	x	½ - 1
Business & Marketing Career Exploration	x	x	x				1
Business Principles and Applications			x	x			1
Principles of Marketing			x	x	x	x	1 – 3
Salesmanship				x	x	x	1 – 3
Advertising Services				x	x	x	1 – 3
Marketing Communications				x	x	x	1 – 3
Marketing Dynamics					x	x	1 – 3
Market Research and Statistics					x	x	1 – 3
Retail Marketing				x	x	x	1 – 3
Introduction to Hospitality				x	x	x	1
Travel and Tourism Marketing				x	x	x	1 – 3
International Marketing					x	x	1 – 3
Sports and Entertainment Marketing				x	x	x	1 – 3
Entrepreneurship					x	x	1 – 3
Advertising/Promotion I				x	x	x	1 – 3
Advertising/Promotion II					x	x	1 – 3
Fashion Marketing I				x	x	x	1 – 3
Fashion Marketing II					x	x	1 – 3
Financial Services I				x	x	x	1 – 3
Financial Services II					x	x	1 – 3
Advanced Finance and Credit					x	x	1 – 3
Retail Services I				x	x	x	1 – 3
Retail Services II					x	x	1 – 3
Marketing Management					x	x	1 – 3
Advanced Marketing					x	x	1 – 3

*Credit may be awarded for Junior/Senior courses for both the related class (1 credit) and for work-site experiences. The credit for work-site experiences is based on the number of class hours spent at the work site for a maximum of two (2) credits per related class.

**Business Economics is an interdisciplinary course which meets the graduation requirement for Economics.

MARKETING EDUCATION

Overview of Marketing Education

The Marketing Education program is designed to provide realistic opportunities to succeed on a frequent and continual basis through awareness, exploration, applied learning, and advanced training. It is a dynamic program that provides students with specific employment skills and with practical applications of math, social sciences, and English—as they are experienced in the real world. Students develop critical school-to-career skills that will last a lifetime.

Several courses in the Marketing Program Area are cross-referenced with the Business Program Area. Cross-referenced courses are courses available in both program areas and may be taught by teachers certified in either Business or Marketing Education.

Business Economics is an interdisciplinary course which meets the graduation requirement for Economics.

The National Retail Federation has produced *voluntary industry-based job skill standards* for the Professional Sales Associate. The standards describe what trainers need to teach, what workers need to learn, and what employers can expect when they look for employees to hire and promote. The standards send a clear message to educators about industry's interest in reality-based education for the large percentage of students whose first job is in retail. Kentucky Marketing Education in partnership with the Coalition for a Stronger Retail Service Workforce is currently developing a process for certifying students who demonstrate competency in the National Retail Skill Standards.

Distributive Education Clubs of America (DECA) is a vocational student organization available to students enrolled in any Marketing Education course. It is an integral part of the instruction, and activities are provided to enhance leadership and citizenship development. The performance-based events are designed around the students' career objective and the instructional program that prepares them for their occupation. Students are encouraged to be members and become involved in these activities.

School-based enterprises (stores, banks, etc.) under the supervision of the Marketing Education teachers and operated by Marketing Education students are encouraged.

Computer Applications and Word Processing are courses supportive of and beneficial to Marketing Career Majors and are highly encouraged. Statewide articulation agreements exist for these courses. These agreements provide students with an opportunity to proceed from secondary to post-secondary technical and higher education in these computer-related areas in a non-duplicative manner.

Whenever qualified teachers are not available for teaching the courses for the preparation programs of Retailing or Fashion Marketing, the Commissioner of Education may approve the employment of secondary teachers with an area of concentration or major specialization in business education, basic business, general business, or accounting-general business and one year or 2000 hours of approved retail work experience. An additional 9 semester hours credit in marketing education must be completed within a two-year period at an institution approved for the preparation of marketing education teachers. The 9 semester hours credit shall include preparation in Coordination Techniques in Marketing Education, Methods of Teaching and Curriculum Development in Marketing Education, and one of the following: Survey of Distribution, Principles of Marketing, Consumer Behavior, Consumer Financial Problems, Management Marketing, Advanced Marketing, Distribution Systems and Retailing.

BUSINESS AND MARKETING CAREER CLUSTER

MARKETING CAREER MAJORS

Advertising Services	Apparel & Access./ Fashion Merchandising	Management/ Entrepreneurship	Financial Services	Food Market Retailing
Business & Marketing Career Exploration (7 th - 8 th Grades)				
Exploratory Computers (7 th Grade)		Keyboarding Applications (8 th Grade)		
GRADES 10 – 12				
Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses
Principles of Marketing Advertising/Promo. I → Adver./Promotion II Salesmanship Advertising Services → Advanced Marketing Business Economics Retail Services I →Retail Services II	Principles of Marketing OR Retail Marketing Fashion Marketing I →Fashion Marketing II Business Economics →Advanced Marketing	Principles of Marketing OR Retail Marketing Entrepreneurship Business Economics →Marketing Mgmt.	Principles of Marketing OR Retail Marketing Financial Services I →Financial Services II Business Economics →Advanced Finance & Credit	Principles of Marketing OR Retail Marketing Retail Services I →Retail Services II Business Economics Market Research & Statistics →Advanced Marketing
Elective Courses	Elective Courses	Elective Courses	Elective Courses	Elective Courses
Marketing Dynamics →Marketing Mgmt. **Computer Apps. Entrepreneurship **Word Processing Retail Marketing Retail Services I →Retail Services II Marketing Communications Market Res. & Statistics Other Voc. Courses	Adver./Promotion I Marketing Dynamics →Marketing Mgmt. *Apparel Management **Computer Apps. Entrepreneurship **Word Processing Salesmanship Retail Services I →Retail Services II Marketing Comm. Market Res. & Stats. *Textile Services Other Voc. Courses	Marketing Dynamics → Advanced Marketing Adver./Promotion I *Agriscience *Clothing Management **Computer Apps. Entrepreneurship *Agribusiness/Farm Management **Word Processing Retail Services I →Retail Services II Marketing Comm. Market Res. & Stats. Other Voc. Courses	*Accounting I → Advanced Marketing Adver./Promotion I → Adver./Promotion II Marketing Dynamics →Marketing Mgmt. *Mathematics for Business & Industry **Computer Apps. Entrepreneurship **Word Processing Retail Marketing Marketing Communications Market Res. & Stats. Other Voc. Courses	Marketing Dynamics →Marketing Mgmt. **Computer Apps. Entrepreneurship *Nutritional Science **Word Processing *Culinary Skills Marketing Comm. Other Voc. Courses
*Other vocational courses directly related to career major.				
**Statewide articulation agreements exist for these courses. These agreements provide students with an opportunity to proceed in the identified computer-related areas in a non-duplicative manner from the secondary level to post-secondary technical and higher education.				
→To complete a career major, students must earn four career-related credits within the major <u>and</u> 3 math, 2 science, 4 English, and 2 social studies credits. Three credits must come from recommended courses <u>and</u> include an upper-level course (courses indicated with an arrow.)				
NOTE: Business Economics is an interdisciplinary course which meets the graduation requirement for Economics.				

BUSINESS AND MARKETING CAREER CLUSTER

MARKETING CAREER MAJORS (continued)

General Marketing	General Retailing/ Wholesaling	Hospitality, Travel Tourism & Recreation	Hotel/Motel Services	Sports Marketing
Business & Marketing Career Exploration (7 th – 8 th Grades)				
Exploratory Computers (7 th Grade)		Keyboarding Applications (8 th Grade)		
Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses	Recommended Courses
Principles of Marketing Adver./ Promotion I Retail Services I Marketing Dynamics →Advanced Marketing →Marketing Management	Principles of Marketing OR Retail Marketing Adver./Promotion I Salesmanship Business Economics Retail Services I →Advanced Marketing	Principles of Marketing OR Retail Marketing Intro. To Hospitality International Marketing →Advanced Marketing Business Economics Travel & Tourism Marketing	Principles of Marketing OR Retail Marketing Intro. To Hospitality Business Economics →Advanced Marketing Marketing Dynamics →Marketing Management	Principles of Marketing OR Retail Marketing Retail Marketing Sports Marketing Business Economics Marketing Dynamics →Advanced Marketing
Elective Courses	Elective Courses	Elective Courses	Elective Courses	Elective Courses
International Marketing *Computer Applications Entrepreneurship *Word Processing *Environmental Tech. *Word Processing →Retail Services II Marketing Communications Market Res. & Statistics Business Economics Other Voc. Courses	→Adver./Promotion II →Marketing Mgmt. *Computer Applications Entrepreneurship *Word Processing →Retail Services II Marketing Comm. Market Res. & Statistics Other Voc. Courses	→Marketing Mgmt. *Computer Applications Entrepreneurship *Environmental Tech. *Word Processing Retail Services I Marketing Comm. Market Res. & Statistics *Specialized Services in Hospitality Other Voc. Courses	**Computer Applications Entrepreneurship *Housing Environments *Word Processing Retail Services I Marketing Comm. Market Res. & Statistics *Specialized Services in Hospitality Other Voc. Courses	→Business Mgmt. *Computer Apps. Entrepreneurship *Word Processing Retail Services I Marketing Comm. Market Res. & Statistics Other Voc. Courses
*Other vocational courses directly related to career major.				
**Statewide articulation agreements exist for these courses. These agreements provide students with an opportunity to proceed in the identified computer-related areas in a non-duplicative manner from the secondary level to post-secondary technical and higher education.				
→To complete a career major, students must earn four career-related credits within the major <u>and</u> 3 math, 2 science, 4 English, and 2 social studies credits. Three credits must come from recommended courses <u>and</u> include an upper-level course (courses indicated with an arrow.)				
NOTE: Business Economics is an interdisciplinary course which meets the graduation requirement for Economics.				

MODEL COURSE SEQUENCE

BUSINESS AND MARKETING CAREER CLUSTER			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Principles of Marketing	Business Economics	Word Processing	Advanced Marketing

BUSINESS AND MARKETING CAREER CLUSTER			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Principles of Marketing	Computer Applications	Marketing Dynamics	Entrepreneurship

MODEL COURSE SEQUENCE

GENERAL MARKETING CAREER MAJOR			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Principles of Marketing	Advertising Services	Marketing Dynamics	Advanced Marketing

GENERAL MARKETING CAREER MAJOR			
ACADEMIC CORE			
9 TH	10 TH	11 TH	12 TH
English	English II	English III	English IV
Algebra I	Geometry	Math Elective ↔	Elective
Science	Science	Health & PE	Science
Social Studies	History & Appreciation of Visual and Performing Arts	Social Studies	Social Studies

TECHNICAL CORE			
Principles of Marketing	Retail Services I	Retail Services II	Marketing Management

Business Economics

Course Overview:

This course is a ½-credit course designed to be a comprehensive study of economics which meets the economics requirement for graduation. It provides an in-depth study of how people produce, distribute, and consume goods and services. Economic terminology, theory, and a comparison of economic systems and policies are integral to the course. Simulations and/or actual work situations may be used to provide practical experience with various economic conditions.

Guiding/Essential Questions:

- **What role does the government play in a nation's economy?**
 - Discuss how economic policies are determined by elected officials.
 - Demonstrate an understanding of the cause/effect of business cycles and how monetary and fiscal policy can be used to regulate these problems.
 - Compare the characteristics and benefits of a market economy, command economy, mixed economy and traditional economy and how each economic system answers the basic economic problem of scarce resources.
 - Examine the relationship between the government and the economy.
- **What role do I play in the economy?**
 - Utilize decision-making models to make economic choices and determine the opportunity cost of those choices.
 - Utilize activities of FBLA and/or DECA as an integral component of course content and leadership development.
 - Apply economic concepts through simulations.
- **How does the economy meet the needs of its citizens?**
 - Discuss how the economy of the United States attempts to meet the needs of its citizens.
 - **Understand why people from other nations have come to the United States because of economic opportunities.**
 - Demonstrate employability and social skills relative to the career cluster.
- **How do culture and different belief systems affect the decisions that consumers make?**
 - Analyze economic concepts and understand their relevance to different economic situations.
 - Analyze the impact of international issues and concerns on personal, national, and international economics.
 - Analyze the role culture plays in economic issues of production, distribution, and consumption of goods and services.
 - Apply economic concepts through simulations.
- **Why is it important to study and understand economics?**
 - Analyze economic concepts and understand their relevance to different economic situations.

- Create graphs that illustrate shortages and surplus and describe how the market works to eliminate these conditions; identify the effects each change has on equilibrium price and quantity.
 - Analyze current economic conditions by using economic indicators.
 - Apply economic concepts through simulations.
- **What importance does geography have in a national and/or global economy?**
 - Understand that scarcity is the basic economic problem facing individuals, societies, and nations.
 - Analyze how a nation's wealth and trade potential are tied to its resources.
 - Explore how international trade and multinational companies have led to a global economy.
 - Apply economic concepts through simulations.
- **Why has the economy of the United States changed over time, and have the changes improved the economic condition of its citizens?**
 - Understand how the United States' economy has changed from a rural to an industrial economy to a leader in the global economy.
 - Appraise the effects of technological changes, changes in consumer preferences, price inputs, environment, and legislation on supply and demand and price of goods/services.
 - Create demand curve graphs for two firms (one monopoly and one oligopoly) and explain the levels of output for a firm in perfect conditions.
 - Apply math and communication skills within the technical content.
 - Apply economic concepts through simulations.

Contributions by:

Bill Bitner, Glasgow High School

Dee Colvin, Henry County High School

Jerona White, Henry County High School

Business Economics

Academic Expectations	Guiding Questions	Correlation to the Program of Studies And Vocational Content Charts
<p>Government and Civics (2.14, 2.15)</p>	<p>What role does the government play in a nation's economy?</p>	<p>Students will</p> <ul style="list-style-type: none"> • discuss how economic policies are determined by elected officials. • demonstrate an understanding of the cause/effect of business cycles and how monetary and fiscal policy can be used to regulate these problems. • examine the relationship between the government and the economy. • apply economic concepts through simulations. • analyze decision on distribution of resources. • discuss taxes and how they affect the economy.

Business Economics

Academic Expectations	Guiding Questions	Correlation to the Program of Studies And Vocational Content Charts
Government and Civics (2.14, 2.15)	What role do I play in the economy?	Students will <ul style="list-style-type: none">• utilize decision-making models to make economic choices and determine the opportunity cost of those choices.• utilize activities of FBLA and/or DECA as an integral component of course content and leadership development.

Business Economics

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • write a report for American Enterprise Project to promote as awareness of a facet of the American Enterprise System. • promote committee involvement with FBLA and/or DECA. Design a reporting chart for the committees to know who and when they should report their progress. Write an article to the local newspaper about the function of the committee and plans for an event. • discuss responsible membership in FBLA and/or DECA and prepare a plan for involving members in the activities of the organization. Submit plan to officer team for implementation. • develop questions and interview a government official about the economic development plans for the community. Prepare a report for the FBLA/DECA meeting that will explain how the student organization can support the county plan. Present report to local leaders. • trace a product from beginning to purchase. Create a flow chart to reflect the process. Explain the role of the citizen along the way. <p>Technology suggestion: Create a powerpoint presentation showing the process.</p> <ul style="list-style-type: none"> • select a stock on the stock market and track its progress in the market for a period of time. Trace the political issues which affect the markets both in the United States and around the world. Write a recommendation (persuasive piece) to a potential investor reflecting your choices for best stocks and best time to buy. <p>Technology suggestion: Use the internet to track stocks.</p> <ul style="list-style-type: none"> • define the economic policy of the current administration and evaluate its impact on the economy and consumers. • write a letter to your current President, Senator or Representative encouraging the change or continuation of those policies. (WP-Transactive) 	

Business Economics

Academic Expectations	Guiding Questions	Correlation to the Program of Studies And Vocational Content Charts
Culture and Society (2.16, 2.17)	How does the economy meet the needs of its citizens?	Students will <ul style="list-style-type: none">• discuss how the economy of the United States attempts to meet the needs of its citizens.• understand why people from other nations have come to the United States because of economic opportunities.• demonstrate employability and social skills relative to the career cluster.

Business Economics

Academic Expectations	Guiding Questions	Correlation to the Program of Studies
Culture and Society (2.16, 2.17)	How do culture and different belief systems affect decisions that consumers make?	Students will <ul style="list-style-type: none">• explain the difference between macroeconomics and microeconomics choices.• analyze the impact of international issues and concerns on personal, national, and international economics.• analyze the role culture plays in economic issues of production, distribution, and consumption of goods and services.

Business Economics

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> investigate ethics in advertising; why people do or do not buy products. Create an advertisement for different cultures and/or languages. discuss committee use within FBLA/DECA and how the work performed by the committee affects the success of the organization. Write a news release explaining a solution to a problem in the community corrected with a community service/free enterprise project. discuss office politics—role of employees and employers and the effect that politics has on production. Design a game about the jobs or the communication within a working situation. develop community service project which involves research and discuss cultural differences pertaining to entrepreneurship/free enterprise in business operation. Create a report with graphics as a plan of action. discuss and role play employee/employer relationships and their importance to economic development in the community. Survey businesses in the community about the needs within the area. Role play within groups an important principle of employee/employer relationships and behavior. The audience (peers) will identify the principle at the end of the role play. research unemployment rates over time. Compare unemployment rates to consumer spending. Graph the results. research consumer spending of teenagers and adults. Analyze the types of products on which they spend the most, looking for similarities and differences. Create a chart showing the results of the survey. 	

Business Economics

Academic Expectations	Guiding Questions	Correlation to Program of Studies and Vocational Content Charts
Economics (2.18, 2.19)	Why is it important to study and understand economics?	Students will <ul style="list-style-type: none">• analyze economic concepts and understand their relevance to different economic situations.• create graphs that illustrate shortages and surplus and describe how the market works to eliminate these conditions; identify the effects each change has on equilibrium price and quantity.• apply economic concepts through simulations.

Business Economics

Academic Expectations	Guiding Questions	Correlation to Program of Studies and Vocational Content Charts
Economics (2.18, 2.19)	What importance does geography have in a national and/or global economy?	Students will <ul style="list-style-type: none">• understand that scarcity is the basic economic problem facing individuals, societies, and nations.• explore how international trade and multinational companies have led to a global economy.• analyze how a nation's wealth and trade potential are tied to its resources.

Business Economics

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> research major crops on products produced in various states and counties. Explain how geographic concerns have determined what will be their major crops or products. Also, trace how geographic features play a role in exports and imports. <p><i>Technological suggestion: Use the internet to research information.</i></p> <ul style="list-style-type: none"> explain why tobacco is common in Lexington and coal is common in eastern Kentucky. design a plan for an FBLA/DECA-sponsored school store. Write a proposal to the school administrator to present the operation of such a store. conduct research (target market survey) as to what items the school community would purchase if available and the cost effectiveness considering the size of the student population and competition in the area. develop an inventory tracking system for the items provided in the school store allowing for reorder amounts, price, and distribution. apply economic concepts to the roles people play in the economy (<i>i.e., consumers, entrepreneurs, investors, producers</i>). Write a play in which all are visible and present to an elementary or middle school class. examine the effectiveness of three different economic systems—command, market, and traditional. Compare and present in graph or chart form the advantages and disadvantages of each system. budget for everyday expenses (<i>e.g., rent, groceries, car, etc.</i>) and discuss the realities of wants and needs. research the positives and negatives of consumer credit. Discuss the responsible ways to use credit. Role-play consumers and consumer credit counselors in order to discuss relevant issues. research the role of banks in our economy. Evaluate how to best use the resources and services banks provide (<i>e.g., loans, credit cards, checking accounts, savings accounts IRAs, mutual funds, etc.</i>). Create a chart listing the results. 	

Business Economics

Academic Expectations	Guiding Questions	Correlation to Program of Studies and Vocational Content Charts
<p>Historical Perspective (2.20)</p>	<p>Why has the economy of the United States changed over time and have the changes improved the economic condition of its citizens?</p>	<p>Students will</p> <ul style="list-style-type: none"> • understand how the United States economy has changed from a rural to an industrial economy to a leader in the global economy. • appraise the effects of technological changes, changes in consumer preferences, price inputs, environment, and legislation on supply and demand, and price of goods and services. • create demand curve graphs for two firms (one monopoly and one oligopoly) and explain the levels of output for a firm in perfect condition. • apply economic concepts through simulations. • apply math and communication skills within the technical content.

Business Economics

Sample Activities	Sample Extensions for Diverse Learners
<p>Students will</p> <ul style="list-style-type: none"> • identify the most important economic issues for the United States because of its participation in the global economy. Create a bulletin board that displays this information. • research trends in business after political or administrative change (<i>e.g., new president/CEO, different party in control of Congress; fall of communism in former Soviet Union; national election; mayor; sheriff; principal; school board, etc.</i>). • research the interconnectedness of the world economies. Explain the impact dips in world economies have on the U.S. economy. Create a web page showing the connections and why they are important to our economy. • explain how people invest in the stock market. • trace the impact political issues have had on the stock market. Explain how the stock market is able to now recover from a 500 point drop and was not able to recover in the 1920s. Present orally to class. • interview registered voters. Determine how important economic issues are in deciding which candidate they will select. Make sure business owners are included. Create a spreadsheet showing the market research numbers and results. 	

Business Economics

Course Description: This course meets the graduation requirement for Economics by providing students with an in-depth study of how people produce, distribute, and consume goods and services. Economic terminology and theory as well as the global impact of international economics are emphasized. Simulations and/or actual work situations may be used to provide practical experience with various economic conditions. A comparison of economic systems and policies is integral to the course. Leadership development will be provided through FBLA and/or DECA. **This course covers the Economics Content/Process in the Program of Studies for Kentucky Schools.** (*This course is cross-referenced with Business Education.*)

Academic Expectations	Content/Process
	<p>Students will</p> <ul style="list-style-type: none"> 2.20 • discuss how economic policies are determined by elected officials. 2.18 • explain the difference between macroeconomic and microeconomic choices. 2.18 • analyze economic concepts and understand their relevance to different economic situations. 2.19 • understand that scarcity is the basic economic problem facing individuals, societies, and nations. 2.1, 5.5 • utilize decision-making models to make economic choices and determine the opportunity cost of those choices. 2.20 • analyze the impact of international issues and concerns on personal, national, and international economics. 1.16 • create graphs that illustrate shortages and surplus and describe how the market works to eliminate these conditions; identify the effects each change has on equilibrium price and quantity. 2.18 • analyze current economic conditions by using economic indicators. 2.20 • understand how the United States economy has changed from a rural to an industrial economy to a leader in the global economy. 2.18 • demonstrate an understanding of the cause/effect of business cycles and how monetary and fiscal policy can be used to regulate these problems. 2.15, 2.19 • appraise the effects of technological changes, changes in consumer preferences, price inputs, environment, and legislation on supply and demand and price of goods/services. 2.14, 2.20 • compare the characteristics and benefits of a market economy, command economy, mixed economy and traditional economy and how each economic system answers the basic economic problem of scarce resources. 2.10, 6.3 • create demand curve graphs for two firms (one monopoly and one oligopoly) and explain the levels of output for a firm in perfect condition. 1.16, 5.5 • apply economic concepts through simulations. 2.20, 2.37, 6.2 • examine the relationship between the government and the economy. 2.16, 2.17 • discuss how the economy of the United States attempts to meet the needs of its citizens. 2.17 • understand why people from other nations have come to the United States because of economic opportunities. 2.16 • analyze the role culture plays in economic issues of production, distribution,

2.19 2.19 1.12, 4.0, 5.4 2.37, 2.38 1.9, 1.10	and consumption of goods and services. • analyze how a nation’s wealth and trade potential are tied to its resources. • explore how international trade and multinational companies have led to a global economy. • utilize activities of FBLA and/or DECA as an integral component of course content and leadership development. • demonstrate employability and social skills relative to the career cluster. • apply math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> Secretary’s Commission on Achieving Necessary Skills (SCANS) National Standards: Administrative Support Occupations/Skill Standards. V-TECS 	

Advanced Finance and Credit

Course Description: This course is designed to develop an understanding of financial markets, investing institutions, and the finance and credit industry in our economic system. It includes an introduction to the allocation of financial resources; the effects of the finance and credit institutions on the business community; and the impact that financial decisions have on the consumer market. Areas of study include stock markets, bonds, futures, commodities, interest rates and the economy, interpretation of financial information, insurance and risk management, and job opportunities in the finance and credit area. This course should include real and/or simulated occupational experiences and projects. Leadership development will be provided through FBLA and/or DECA. *(This course is cross referenced with Business Education.)*

SUGGESTED PREREQUISITE: Business Principles and Applications OR Business Economics OR Financial Services I.

Academic Expectations	Content/Process
<p>2.14, 2.17 1.4, 2.15</p> <p>1.11, 5.4 1.12, 2.8, 2.18</p> <p>2.14, 2.30 6.2</p> <p>1.3, 5.3, 5.4 5.5</p> <p>1.13, 5.2 2.36, 6.1 2.14, 2.18</p> <p>2.7, 5.3</p> <p>1.1, 2.7, 67.3</p> <p>1.1, 6.2 2.7, 5.3, 5.4 5.1</p> <p>1.2, 2.7, 2.8</p> <p>2.36, 2.37</p>	<p>Students will</p> <ul style="list-style-type: none"> recognize characteristics of good customer service. develop an understanding of credit transactions including the laws that govern these functions. apply math and communication skills within the technical content. explain buying and selling of stock, identify the various stock exchanges and indices, and discuss/interpret the conditions that affect stock market fluctuations. develop an understanding of the profit objective of a financial institution. investigate and discuss the federal and state deposit insurance guidelines and practices. distinguish among various types of risk (economic, natural, human, pure, speculative, etc.) and evaluate the handling of business risk. develop appropriate advertising campaign for financial institution; prepare marketing procedures for paper products and services. differentiate between terminology for credit and savings transactions. research career opportunities in the finance and credit industry. explain and analyze the sources of revenue for federal, state, and local governments. identify sources and functions of consumer credit and explain the relationship of consumers with the economy. analyze various aspects of foreign trade and finance, including foreign exchange and balance of trade. differentiate between recession and depression. examine financial management as it relates to government and business. utilize activities of FBLA and DECA as an integral component of course content and leadership development. apply math, communication, and accounting skills in preparing and analyzing financial statements. demonstrate employability and social skills relative to the career cluster.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> National Retail Skill Standards Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Advanced Marketing

Course Description: This course is designed to enhance marketing skills developed in the marketing prerequisite courses and to learn advanced marketing skills in such areas as advertising, customer service, supervision, employee/employer relations, etc. for a wide range of marketing careers. This course offers the opportunity for developing advanced skills that are appropriate for careers in sports marketing, hospitality and tourism, general marketing, retailing, hotel/motel, etc. If there is sufficient demand for a specialized course in marketing (i.e., year two of Hospitality Tourism), this course may be specialized. Students in this course may also wish to earn additional credit through marketing retail on-the-job training utilizing the cooperative education method of instruction. Leadership development will be provided through DECA.

SUGGESTED PREREQUISITE: Salesmanship, Advertising and Promotion, Retailing, Fashion Marketing, Food Marketing, Sports Marketing, Travel and Tourism Marketing OR other similar level Marketing courses.

Academic Expectations	Content/Process
<p>2.16</p> <p>1.11</p> <p>1.14, 1.15, 1.16</p> <p>1.3, 2.33</p> <p>2.17, 2.19</p> <p>2.8, 2.10, 2.13</p> <p>5.1, 6.2</p> <p>2.36, 2.37</p>	<p>Students will</p> <ul style="list-style-type: none"> develop customer-service skills, employee/employer relations and other human relation skills through authentic simulations, role plays, case studies, or cooperative education. identify through a wide variety of media and observations a chosen career related to the retail service area. develop career marketing information and create an organized computer-generated electronic presentation with music and movement. demonstrate skills in reading, writing, and advanced communications through authentic simulations, role plays, or cooperative education. demonstrate how to function as responsible citizens through simulations, role plays, or cooperative education. apply math and communication skills within the technical content. utilize activities of DECA as an integral component of course content and leadership development. demonstrate employability and social skills relative to the career cluster.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> National Retail Skill Standards Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Advertising/Promotion I

Course Description: This course is designed to provide students with very real “hands-on” applications relating to the Advertising/Promotion industry through simulations, school-based enterprises, and/or work experiences. Students are exposed to all forms of media (print, web page, etc.), methods, budgets, and evaluations which are used to help sell a product, service, or business. Leadership development will be provided through DECA.	
Academic Expectations	Content/Process
2.36	Students will <ul style="list-style-type: none"> research career opportunities in the advertising industry.
1.4	<ul style="list-style-type: none"> demonstrate a fundamental knowledge of advertising concepts as they relate to marketing and business.
1.3, 2.30	<ul style="list-style-type: none"> differentiate between various types of print, broadcast, and electronic media.
1.3, 5.1, 5.5	<ul style="list-style-type: none"> analyze the promotional mix of an area business and make recommendations to that business on media selection.
6.1, 6.2	<ul style="list-style-type: none"> develop a one-year promotional budget based on anticipated sales, previous year’s sales, or objective task method.
6.3	<ul style="list-style-type: none"> explain the relationship between target market and marketing mix.
1.4	<ul style="list-style-type: none"> identify misleading or deceptive advertising practices as indicated by the legislature that governs ethical advertising practices.
1.12, 6.2	<ul style="list-style-type: none"> utilize activities of DECA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply math and communication skills within the technical content.
2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
Connections <ul style="list-style-type: none"> Secretary’s Commission on Achieving Necessary Skills (SCANS) National Retail Skill Standards 	

Advertising/Promotion II

Course Description: This course is a continuation of Advertising/Promotion I. Students are exposed to all forms of media (print, web page, etc.), methods, budgets, and evaluations which are used to help sell a product, service, or business. Leadership development will be provided through DECA.

SUGGESTED PREREQUISITE: Advertising/Promotion I

Academic Expectations	Content/Process
<p>6.2</p> <p>1.4, 1.11</p> <p>2.22, 5.5, 6.1</p> <p>1.11, 2.17, 2.33</p> <p>5.1, 5.2</p> <p>1.16, 2.23</p> <p>1.12, 6.2</p> <p>1.9, 1.10, 1.12</p> <p>2.36, 2.37</p>	<p>Students will</p> <ul style="list-style-type: none"> • prepare product promotions, community service promotions, and press releases. • explain and evaluate crisis management (negative news releases). • develop, plan, execute, and evaluate an advertising plan, including marketing research, calendars and budgets. • establish a relationship between school and business activities by collaborating with business professionals. • evaluate two advertising campaigns and identify the psychological guidelines and associated techniques used in each campaign. • demonstrate a knowledge of advertising principles as they apply to the creation of a web site. • utilize activities of DECA as an integral component of course content and leadership development. • apply math and communication skills within the technical content. • demonstrate employability and social skills relative to the career cluster.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Retail Skill Standards 	

Advertising Services

Course Description: This introductory course is designed to develop students' understanding of advertising as it relates to successful marketing and business operations. Students will be exposed to a broad knowledge of advertising that will be an asset in many career areas. Various advertising methods of promotion which are used to help sell a product, service or business will be explored—forms of media, methods, budgets, and evaluations. Leadership development will be provided through DECA.	
Academic Expectations	Content/Process
1.12, 1.16, 2.36	Students will <ul style="list-style-type: none"> research career opportunities in the advertising industry and prepare an oral or written presentation of findings.
1.4	<ul style="list-style-type: none"> demonstrate a fundamental knowledge of advertising concepts as they relate to marketing and business.
1.3, 2.30	<ul style="list-style-type: none"> differentiate between various types of print, broadcast, and electronic media and evaluate the proper use of these media.
6.1, 6.2	<ul style="list-style-type: none"> develop, plan, execute, and evaluate an advertising plan, including market research, calendars, and budgets.
1.12, 4.0, 6.2	<ul style="list-style-type: none"> utilize activities of DECA as an integral component of course content and leadership development.
2.36, 2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relative to a career cluster.
1.11, 2.17, 2.33	<ul style="list-style-type: none"> establish a relationship between school and business activities by collaborating with business professionals.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply math and communication skills within the technical content.
Connections	
<ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) National Retail Skill Standards 	

Business and Marketing Career Exploration

Course Description: This course provides students with a survey of skills needed for school-to-work transition. Opportunities to explore the business and marketing career cluster and career paths, to heighten self-awareness, develop priorities and career decision-making skills are also provided. A variety of instructional resources, self-assessment instruments, and career interest surveys are included. Interpersonal skill development and orientation to word processing, computer spreadsheet, and database are included. Leadership development will be provided through FBLA and/or DECA. <i>(This course is cross referenced with Business Education.)</i>	
Academic Expectations	Content/Process
1.12	Students will <ul style="list-style-type: none"> reinforce basic skills in human relations and in both written and oral communication including customer relations.
1.16, 2.36	<ul style="list-style-type: none"> develop a personal portfolio of careers to explore; research and prepare reports about business and marketing careers.
2.31	<ul style="list-style-type: none"> complete self-assessment surveys to link interests, hobbies, skills, and school subjects to occupations.
2.3, 2.16, 2.19	<ul style="list-style-type: none"> complete a career interest survey identifying general likes and dislikes, personal skills, and job values.
2.37, 2.38	<ul style="list-style-type: none"> complete a job application, compose a resume and a letter of application, and prepare for an interview.
2.14, 2.17, 5.4	<ul style="list-style-type: none"> define world of work vocabulary; explain concepts relating to the world of work; and explore the importance of business ethics.
2.29, 2.36	<ul style="list-style-type: none"> develop and/or update Individual Graduation Career Plans.
2.17, 2.33	<ul style="list-style-type: none"> develop decision-making, problem-solving, and critical thinking skills to become life-long learners and self-directed individuals.
1.16, 6.2	<ul style="list-style-type: none"> develop and key a budget using spreadsheet and database software, based upon a desired adult lifestyle.
1.12, 4.0, 6.2	<ul style="list-style-type: none"> utilize activities of FBLA and/or DECA as an integral component of course content and leadership development.
2.37, 2.38	<ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Business Principles and Applications

Course Description: This course establishes basic foundations for further study in business and marketing courses and provides essential information for making financial and economic decisions. Students learn about the fundamentals of the American free enterprise system and world economies; application of sound money management for personal and family finances; credit management, consumer rights and responsibilities; forms of business ownership; risk and insurance; and the importance of international trade. Leadership development will be provided through FBLA and/or DECA. <i>(This course is cross referenced with Business Education.)</i>	
Academic Expectations	Content/Process
2.7, 2.30, 2.33 2.14, 2.18 1.10, 2.20 2.15, 6.1 2.30, 5.2, 5.3 1.16, 2.36, 2.37 1.11, 1.13 2.30, 2.31 2.15, 2.31 2.14, 2.18, 2.19 5.4, 6.2 2.7, 2.29 2.30 1.9, 1.10, 1.12 2.36, 2.37	Students will <ul style="list-style-type: none"> • analyze the role of the consumer. • explain characteristics of the free enterprise system. • identify and analyze constitutional freedom and rights of U.S. citizens and economic roles of an individual. • differentiate capitalism, socialism, and communism; between municipal and business corporations. • compare sole proprietorship, partnership, corporation, and cooperative; consumers' cooperative to a producers' cooperative. • research and analyze career opportunities in business and the relationship of education, employment, and wages. • explain and analyze credit and calculate simple interest. • demonstrate a knowledge of saving and investing as well as financing and use of credit. • identify and explain government's and labor's roles in business. • define economics and the kinds of economic resources. • utilize activities of FBLA and/or DECA as an integral component of course content and leadership development. • explain what is involved in budgeting and demonstrate budget recordkeeping. • explain how insurance protects against economic loss and the purpose of different types of insurance coverage. • apply math and communication skills within the technical content. • demonstrate employability and social skills relative to the career cluster.
Connections <ul style="list-style-type: none"> • National Standards: Administrative Support Occupations/Skill Standards, V-TECS • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Entrepreneurship

Course Description: This course provides the opportunity to explore the rewards and risks of business ownership. Emphasis is given to the characteristics of successful entrepreneurs: planning, organizing, and beginning a business; financing and managing the enterprise; franchising opportunities; and sources of financing. Cooperative and/or shadowing experiences may be used to enhance course instruction. Leadership development will be provided through FBLA and/or DECA. <i>(This course is cross referenced with Business Education.)</i>	
Academic Expectations	Content/Process
1.4, 1.12 2.1, 2.8, 2.11 1.16 1.4, 2.20, 2.21 2.36 2.4, 5.5, 6.1 2.21, 2.25 2.33 1.1, 5.1, 5.4 2.14, 2.29, 5.1 2.2, 2.15, 2.18 2.2, 2.3, 2.7 5.3 2.8, 2.30 2.14, 2.29 1.16, 5.1, 6.3 4.0, 6.2 2.36, 2.37 1.9, 1.10, 1.12	Students will <ul style="list-style-type: none"> • demonstrate customer service orientation. • describe the financial statements needed for a business plan and the purposes in financial planning. • investigate the role of international trade, opportunities of global markets, and the potential of international trade. • describe the legal considerations for starting a business. • formulate a business plan and describe its components, recognizing the dual roles of a small business owner. • distinguish intensive, integrative, and diversification growth strategies. • explain the purpose of a working management plan. • identify sources of assistance for entrepreneurs. • discuss market analysis to determine target market (who is the customer). • examine the role of management in a successful business, specific management techniques for small business, and management strategies. • analyze the risks and rewards of starting a business. • analyze pricing in the marketing mix, pricing strategies, and the establishment of a pricing strategy. • describe the role of market analysis in business ownership. • identify, evaluate, and select sources for financing a business venture. • identify training procedures, hiring policies, and rights and responsibilities of small business employees. • select and analyze computer software/hardware options for small business; examine benefits of organization membership. • utilize activities of FBLA and/or DECA as an integral component of course content and leadership development. • demonstrate employability and social skills relative to the career cluster. • apply math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Retail Skill Standards • National Standards: Administrative Support Occupations/Skill Standards, V-TECS 	

Fashion Marketing I

Course Description: This course is designed to provide in-depth study of the skills and knowledge needed for success in fashion positions and exposes the student to management positions in the fashion industry. The instruction includes fashion trends, textiles, marketing, promotions, colors, and careers. Leadership development will be provided through DECA.	
Academic Expectations	Content/Process
5.1, 5.2	Students will <ul style="list-style-type: none"> recognize and analyze current fashion trends.
5.1, 5.2, 6.1	<ul style="list-style-type: none"> interpret the use of design elements in clothing.
5.1, 5.2	<ul style="list-style-type: none"> analyze color as it relates to apparel and personal clothing.
2.3, 5.1	<ul style="list-style-type: none"> examine fiber properties and assess the difference between natural and manufactured fibers.
2.18, 2.36	<ul style="list-style-type: none"> investigate careers available in the fashion industry.
1.3, 1.11	<ul style="list-style-type: none"> create transactional writings that evaluate the current fashion industry.
2.18, 2.36, 2.37	<ul style="list-style-type: none"> gain job knowledge to help with successful transition from school to work.
5.1, 5.2, 6.1	<ul style="list-style-type: none"> demonstrate knowledge of how to organize and promote a fashion show.
2.2, 2.3, 2.7	<ul style="list-style-type: none"> analyze pricing in the marketing mix, pricing strategies, and establishment of a pricing strategy.
1.12, 4.0, 6.2	<ul style="list-style-type: none"> utilize activities of DECA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply math and communication skills within the technical content.
2.36, 2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
Connections <ul style="list-style-type: none"> National Retail Skill Standards Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Fashion Marketing II

Course Description: This course is a continuation of Fashion Marketing I and is designed to provide additional study of the skills and knowledge needed for success in fashion positions; it exposes the student to management positions in the fashion industry. The instruction includes fashion trends, textiles, marketing, promotions, colors, and careers. Leadership development will be provided through DECA.	
SUGGESTED PREREQUISITE: Fashion Marketing I	
Academic Expectations	Content/Process
5.1, 5.2 2.18, 2.36, 2.37 1.3, 1.11 2.18, 2.36, 2.37 2.30, 5.1, 6.1 5.5, 6.1, 6.2, 6.3 2.2, 2.3, 2.7 1.12, 4.0, 6.2 2.37 1.9, 1.10, 1.12	Students will <ul style="list-style-type: none"> recognize and analyze current fashion trends. investigate careers available in the fashion industry. create transactional writings that evaluate the current fashion industry. gain job knowledge to help with successful transition from school to work. determine promotional characteristics for fashion apparel. analyze fashion apparel buying and merchandising procedures. analyze pricing in the marketing mix, pricing strategies, and establishment of a pricing strategy. utilize activities of DECA as an integral component of course content and leadership development. demonstrate employability and social skills relative to the career cluster. apply math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> National Retail Skill Standards Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Financial Services I

Course Description: This course is designed for 11th and 12th grade students interested in pursuing a career in the financial institution field. It involves operation of a student financial center in cooperation with a sponsoring bank, which provides application of banking and financial procedures and concepts. Leadership development will be provided through FBLA and/or DECA. *(This course is cross referenced with Business Education.)*

SUGGESTED PREREQUISITE: One Business or Marketing credit and Special Permission of the Instructor.

Academic Expectations	Content/Process
<p>1.3, 2.33</p> <p>2.36, 2.37</p> <p>2.7, 2.8, 6.2</p> <p>2.16, 2.17</p> <p>1.1, 2.18</p> <p>2.37, 2.38</p> <p>1.2, 2.30</p> <p>2.30, 4.0</p> <p>6.3</p> <p>1.12, 4.0, 5.1</p> <p>2.36, 2.37</p> <p>2.7, 2.8</p>	<p>Students will</p> <ul style="list-style-type: none"> • develop and manage a student financial center through the sponsorship of a local bank. • research career opportunities in financial services. • demonstrate financial activities of a student financial center including preparing and analyzing financial statements. • apply communication skills and demonstrate appropriate customer/employee and employee/employer interactions/relations. • define basic banking terminology and develop an understanding of how banks function within the U.S. economy. • develop an employment portfolio (resume, letters of reference, etc.) and demonstrate job interview techniques. • define examples of credit used by consumers, businesses, and government. • develop standards and policies for extending credit and making collections. • discuss relationship between retailers and financial services (in-store banks, ATMs, credit cards, financing/layaway, etc.) • utilize activities of FBLA and/or DECA as an integral component of course content and leadership development. • demonstrate employability and social skills relative to the career cluster. • apply math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS • National Retail Skill Standards 	

Financial Services II

Course Description: Financial Services II is a continuation of Financial Services I, providing opportunities to enhance students' math and English portfolio writings. Students continue to learn and practice financial activities associated with the operation of a bank and other finance-related institutions in addition to assuming management and supervisory responsibilities, including training "new employees." Students will participate in a work-based learning experience (i.e., co-op, internship, shadowing, mentoring, etc.). Leadership development will be provided through FBLA and/or DECA. *(This course is cross referenced with Business Education.)*

SUGGESTED PREREQUISITE: Financial Services I

Academic Expectations	Content/Process
<p>1.3, 2.33</p> <p>6.1, 6.2</p> <p>2.36, 2.37</p> <p>2.7, 2.8</p> <p>1.12</p> <p>2.37, 2.38</p> <p>1.1, 2.16, 2.18</p> <p>6.3</p> <p>1.12, 4.0, 5.1</p> <p>5.2, 5.5, 2.37</p> <p>2.36, 2.37</p> <p>2.8, 2.11</p>	<p>Students will</p> <ul style="list-style-type: none"> • demonstrate interpersonal management skills and provide training and supervision for new employees. • participate in a work-based learning experience (i.e., shadowing, mentoring, internship, or co-op) related to a financial services industry. • explain operations of the student financial center to first-year students. • plan, organize, and prepare financial center for opening. • apply communication skills by preparing and presenting oral presentations on work ethics, professional image, and other work-related topics. • update employment portfolio and individual graduation plan. • demonstrate decision-making skills and teamwork by reviewing current fee structure, policies, interest rates, and products and making recommendations for change if needed. • discuss relationship between retailers and financial services (in-store banks, ATMs, credit cards, financing/layaway, etc.) • utilize activities of FBLA and/or DECA as an integral component of course content and leadership development. • continue simulated work experience in the student bank <u>and</u> shadow personnel in a finance-related position. • demonstrate employability and social skills relative to the career cluster. • apply appropriate math and communication skills relative to the career cluster.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Standards: Administrative Support Occupations/Skill Standards, V-TECS • National Retail Skill Standards 	

International Marketing

Course Description: This course is designed to explore the cultural, economic, political, legal, and technological environments facing international marketers in today's global economy. Students will find out what it takes to be a successful international marketer and open up a world of opportunity. Leadership development will be provided through DECA.

SUGGESTED PREREQUISITE: Principles of Marketing or its equivalent.

Academic Expectations	Content/Process
<p>2.17, 6.3</p> <p>2.19, 6.1</p> <p>2.14, 2.15</p> <p>2.36, 2.37</p> <p>1.2, 1.16</p> <p>2.18, 5.5</p> <p>2.19, 5.4</p> <p>5.4</p> <p>5.3, 6.2</p> <p>5.1</p> <p>2.18</p> <p>2.15, 2.17</p> <p>1.16, 2.15</p> <p>1.2</p> <p>1.12, 6.3</p> <p>1.12, 5.4</p> <p>2.37</p> <p>1.9, 2.7, 2.8</p>	<p>Students will</p> <ul style="list-style-type: none"> • research the impact of different cultural aspects on international trade (cultural diversity and demographics in international markets.) • examine the impact of geography on international trade. • analyze current trends concerning international economics. • investigate careers available in international marketing. • demonstrate a knowledge of the importance of emerging trends and technologies in international marketing. • evaluate the economic interdependence of different countries. • analyze the major trade agreements governing world trade and demonstrate a knowledge of the principal functions of international and United States governmental agencies responsible for promoting international commerce and stability. • compare the different types of barriers and trade supports. • compare and contrast international marketing with target marketing. • describe the similarities between multinational marketing and mass marketing. • examine the standard business practices involved in exporting and importing. • assess cultural, economic, and political influences of multinational businesses. • research the cultural, economic, and political differences and similarities among countries. • explain how international money markets function. • describe how language, culture, available media, and regulations affect international advertising. • utilize activities of DECA as an integral component of course content and leadership development. • demonstrate employability and social skills relative to the career cluster. • apply math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • National Retail Skill Standards • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Introduction to Hospitality

Course Description: This course is designed for students interested in marketing careers in the hospitality industry. The instruction includes career awareness in the areas of recreation, travel/tourism, hotel/motel, and restaurant. Other topics include general hospitality operations, customer service, leadership development, communication skills, attitude and personality development, sales techniques, and promotions. Leadership development will be provided through DECA.	
Academic Expectations	Content/Process
1.12, 2.16, 5.4	Students will <ul style="list-style-type: none"> develop customer-service skills, employee/employer relations, and other human relations skills.
2.18, 2.19	<ul style="list-style-type: none"> explain factors that influence customer behavior and customers' perception of hospitality and tourism services.
1.9, 1.10	<ul style="list-style-type: none"> apply math and communication skills within the career cluster.
2.37, 5.2	<ul style="list-style-type: none"> illustrate the service delivery system of a full-service hotel and make a presentation of the results of the project.
2.36, 6.1	<ul style="list-style-type: none"> shadow an individual in the restaurant industry and create a job description for a newspaper ad for this position.
1.16, 2.23, 6.3	<ul style="list-style-type: none"> design and construct a model park for a specific area of the country utilizing the most advanced and highly developed strategies available.
2.23, 5.2	<ul style="list-style-type: none"> plan management operations for a special event that involves all aspects of hospitality careers in the travel tourism arena.
1.12, 4.0, 5.4	<ul style="list-style-type: none"> utilize activities of DECA as an integral component of course content and leadership development.
2.36, 2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
5.3, 6.2	<ul style="list-style-type: none"> explain the differences between services marketing and product marketing.
1.12, 2.30	<ul style="list-style-type: none"> research, analyze, and discuss the diversity of careers in the hospitality industry.
Connections <ul style="list-style-type: none"> Secretary's Commission on Achieving Necessary Skills (SCANS) Council on Hotel, Restaurant, and Institutional Education (CHRIE) Standards 	

Market Research and Statistics

Course Description: This course is designed for students to develop market research skills. Provides the opportunity for teamwork, development of survey instruments, decision-making skills, sampling techniques, compilation and presentation of findings. Leadership development will be provided through DECA.	
Academic Expectations	Content/Process
1.16, 6.3	Students will <ul style="list-style-type: none"> determine the importance of demographics in developing an understanding of geographic differences as they relate to consumer preferences.
1.16, 2.19, 2.33	<ul style="list-style-type: none"> conduct a market research project for a selected business; then interpret and present the results and findings directly to the business.
2.1, 2.2, 5.1	<ul style="list-style-type: none"> follow the steps of the decision-making process as they relate to the project.
2.1, 2.16	<ul style="list-style-type: none"> develop a survey instrument that guards against biased questions and promotes validity of the study.
1.3, 2.10, 2.18	<ul style="list-style-type: none"> utilize the concepts of random selection, sampling and sampling techniques, and observation in the gathering of both primary and secondary data.
1.8, 2.8, 2.11, 2.13	<ul style="list-style-type: none"> design spreadsheets and database programs for data analysis using math computation in creating charts and graphs that illustrate the compiled findings of the project.
1.9, 2.9, 2.10	<ul style="list-style-type: none"> read, interpret, and/or draw graphs, charts, and tables.
1.12, 4.0, 5.4	<ul style="list-style-type: none"> utilize activities of DECA as an integral component of course content and leadership development.
2.36, 2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply math and communication skills within the technical content.
Connections	
<ul style="list-style-type: none"> National Retail Skill Standards Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Marketing Communications

Course Description: This course introduces students to the nature of personal communications in marketing that occur between marketers and customers and those that occur between co-workers. Course emphasizes customer orientation in communication. Topics addressed include group working relationships, customer relationships, dealing with conflict, communication fundamentals, nature and scope of selling, basic process and techniques of selling, support activities in selling, and extending credit. Leadership development will be provided through DECA.	
Academic Expectations	Content/Process
2.17, 2.29 1.2, 1.4 1.11, 1.12 1.15, 5.1, 5.4 1.1, 1.16 1.13, 2.10, 2.22 2.23, 5.2 1.2, 1.4, 1.16 2.38, 6.1 1.12, 5.1, 5.4 2.36, 2.37 1.9, 1.10	Students will <ul style="list-style-type: none"> • identify personal skills necessary for successful interpersonal relationships with customers, co-workers, and management. • define and list the elements of the communication process, identify verbal and non-verbal signals, and identify noise or interference that can distort information. • write various types of business letters (inquiry, claim, adjustment, invitation, order, reservation, refusal, application, sales, persuasive, collection, etc.), memoranda, news releases, and reports in standard form as well as use standard proofreader's marks to proofread and revise messages. • arrange the setting, write an agenda, and conduct a business meeting. • use magazines/journals to research customer service offerings, promotional plans, and product offerings and determine regional differences as well as target market groups. • create print advertising such as a newspaper ad, magazine ad, or brochure that illustrates knowledge of advertising layout principles and persuasive techniques. • sell a product or service using the depth theory of selling (include the following stages in the sale: pre-approach, approach, determining needs, presentation, overcoming objections, closing the sale, suggestion selling, and reassurance). • send and receive e-mail and demonstrate proper "netiquette" for communication via the internet. • develop an employment portfolio (letter of application, resume, follow-up letter, etc.). • utilize activities of DECA as an integral component of course content and leadership development. • demonstrate employability and social skills relative to the career cluster. • apply math and communication skills within the technical content.
Connections <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • National Retail Skill Standards 	

Marketing Dynamics

Course Description: This course focuses on the study of marketing concepts and principles and their practical applications. Students will examine the risks and challenges marketers face to maintain their competitive edge. Leadership development will be provided through DECA.

SUGGESTED PREREQUISITE: Principles of Marketing or its equivalent

Academic Expectations	Content/Process
<p>1.2, 6.1</p> <p>2.1, 2.2</p> <p>5.1, 6.3</p> <p>2.16</p> <p>1.12, 5.1</p> <p>1.11, 1.16</p> <p>5.1</p> <p>5.1</p> <p>1.2, 1.12</p> <p>2.36, 5.3</p> <p>1.2, 1.12</p> <p>2.37, 2.38</p> <p>2.36, 2.37</p> <p>1.2, 5.4</p> <p>5.1, 5.5</p> <p>1.12, 5.4</p> <p>2.37, 3.0, 4.0</p> <p>1.9, 1.10</p>	<p>Students will</p> <ul style="list-style-type: none"> • categorize business activities as production, marketing, management, or finance. • research the structure of business ownership and explain considerations in business planning. • analyze a business or organization's financial reports and goals. • explain contributions that marketing makes to business and society. • explain channels of distribution and evaluate a distribution plan. • utilize technology in receiving and sending business communication. • identify and evaluate elements of an advertisement. • categorize business risks and explain how various types of risks impact business activities. • explain the impact of an international economy on business activities and describe the advantages and disadvantages of various forms of business ownership. • research and assess employment trends in marketing careers. • explain how diversity affects marketing and explain the impact of multiculturalism on marketing activities. • develop an employment portfolio (resume, letters of reference, etc.) and demonstrate job interview techniques. • demonstrate employability and social skills relative to the career cluster. • explain the importance of target markets and describe advantages and disadvantages of marketing segmentation and mass marketing. • identify types of business risks and methods used by marketers to control those risks. • utilize activities of DECA as an integral component of course content and leadership development. • participate in work-based learning (mentoring, shadowing, co-op, etc.) and service learning. • apply math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • National Retail Skill Standards • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Marketing Management

Course Description: This course emphasizes day-to-day management functions performed by marketing professionals. Students apply knowledge and skills learned in previous marketing courses to management-oriented challenges. They study levels of management, their functions and duties, and styles of management. Involvement in a marketing research project is a recommended activity. Leadership development will be provided through DECA.
SUGGESTED PREREQUISITE: Marketing Dynamics

Academic Expectations	Content/Process
<p>2.6, 2.18, 2.20</p> <p>2.16, 2.17, 2.19</p> <p>2.14, 2.15</p> <p>5.3, 6.1, 6.3</p> <p>2.36, 2.37</p> <p>2.38</p> <p>1.1, 1.12</p> <p>1.12, 5.4</p> <p>2.37, 3.0, 4.0</p> <p>1.9, 1.10, 1.12</p>	<p>Students will</p> <ul style="list-style-type: none"> research and report on current economic climate with regard to gross domestic product (GDP), unemployment, standard of living, and other economic indicators. differentiate among levels of management and explain management styles, criteria used in setting and achieving goals, leadership characteristics, and procedures for monitoring and evaluating employee performance. differentiate among laws and regulations that affect new product development and explain consumer protection provisions of government agencies. discuss how global issues and international trade affect management types, styles, and trends. demonstrate employability and social skills relative to the career cluster. develop an employment portfolio (resume, letters of reference, etc.) and demonstrate job interview techniques. design and implement a research project in an area of marketing research (i.e., advertising, product, market, and sales); analyze and interpret data collected; and present recommendations based on the research report. utilize activities of DECA as an integral component of course content and leadership development. participate in work-based learning (mentoring, shadowing, co-op, etc.) and service learning. apply math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> National Retail Skill Standards Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Principles of Marketing

Course Description: This course provides a basic foundation for further study in marketing. Students study the development of products and then explore what occurs in the marketplace by studying purchasing, pricing, and distribution functions. Decision-making and problem-solving skills are involved in units of human relations, distribution systems, market information management and product/service planning. Portfolio pieces may be derived from units on promotion and risk management. The employment skills learned will improve and increase the chance of successful transition into the world of work. Leadership development will be provided through DECA.	
Academic Expectations	Content/Process
1.4, 1.16 1.9, 1.10, 1.12 1.3, 1.4 5.1, 5.4, 5.5 1.13 2.36, 2.37 2.3, 2.5, 2.7 2.18, 2.19 1.12, 5.4 2.37, 2.38 1.16, 6.3 2.30, 5.2	Students will <ul style="list-style-type: none"> survey the various disciplines in marketing (i.e., traffic, purchasing, sales, warehousing, distribution, staffing, and customer relations). apply math and communication skills within the technical content. reinforce communication, human relations, writing and speaking skills through communications in the promotion and salesmanship units. demonstrate problem-solving and decision-making skills as they apply in human relations, market information management, or product service planning. develop real-life portfolio entries through brochures or advertisement learned in promotion unit. demonstrate employability and social skills relative to the career cluster. investigate the various types of risks that impact business activities; categorize the risks as natural, human or economic; and explain methods a business uses to control risks. understand the role and characteristics of marketing in three different types of economic systems: capitalism, socialism, and communism. utilize activities of DECA as an integral component of course content and leadership development. create a career portfolio including a resume, letters of reference, certifications of training, and samples of work. investigate and analyze the role of technology in improving the marketing process. develop a marketing plan for a new or existing business or product line.
Connections <ul style="list-style-type: none"> National Retail Skill Standards Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Retail Marketing

Course Description: This course is designed to provide an overview of the marketing responsibilities of individuals employed in the retail industry. Emphasis is placed on application of knowledge in such areas as mathematics, human relations, distribution, purchasing, and selling. Employment in school-based or work-based enterprises is recommended in order to give students the opportunity to apply newly acquired skills. The National Retail Skill Standards are integrated into this course giving students the opportunity to receive Retail Skill Standards certification. Leadership development will be provided through DECA.	
Academic Expectations	Content/Process
1.10, 1.12	Students will <ul style="list-style-type: none">develop customer-service skills and employee/employer relations skills.
1.9, 1.10	<ul style="list-style-type: none">apply math and communication skills within the technical content.
5.1, 6.1	<ul style="list-style-type: none">develop an understanding of the marketing concept and its application in retailing.
1.11, 5.1, 6.2	<ul style="list-style-type: none">identify marketing functions as they apply in the retail environment.
1.12	<ul style="list-style-type: none">formulate awareness and understanding of emerging trends in retailing.
2.36, 6.3	<ul style="list-style-type: none">discuss appropriate attitudes and work ethics needed for the world of work.
2.36, 2.37	<ul style="list-style-type: none">demonstrate employability and social skills relative to the career cluster.
1.12, 6.2	<ul style="list-style-type: none">utilize activities of DECA as an integral component of course content and leadership development.
2.36, 5.4	<ul style="list-style-type: none">research the various career choices in retailing.
2.37, 2.38	<ul style="list-style-type: none">create a career portfolio including a resume, letters of reference, certifications of training, and samples of work.
Connections <ul style="list-style-type: none">National Retail Skill StandardsSecretary's Commission on Achieving Necessary Skills (SCANS)	

Retail Services I

Course Description: This course is designed to provide training and develop skills necessary for success in mid-management, specialist, or supervisory positions in the retail marketing services area through the operation of an in-school enterprise such as a school store, restaurant, or other retail enterprises. Students should be involved in all parts of the operation of this enterprise (buying, pricing, sales promotion, product and service technology, etc.), and the enterprise should include all activities associated with the operation of a similar enterprise outside the school. Training agreements and plans related to the occupational training received are to be kept up to date and on file in the teacher's files. Leadership development will be provided through DECA.

SUGGESTED PREREQUISITE: One Marketing credit and Special Permission of the Instructor

Academic Expectations	Content/Process
<p>1.10, 2.16</p> <p>5.1, 5.5, 6.1</p> <p>2.9, 2.18, 2.30</p> <p>2.36, 5.1, 5.4</p> <p>2.14, 2.37, 2.38</p> <p>1.16, 2.1, 2.2</p> <p>2.8, 2.13, 2.18</p> <p>6.2, 6.3</p> <p>1.12, 5.4</p> <p>5.2, 5.5, 2.37</p> <p>6.1, 6.2</p> <p>1.9, 1.10, 1.12</p> <p>2.36, 2.37</p>	<p>Students will</p> <ul style="list-style-type: none"> • develop customer-service skills, employee/employer relations and other human relations skills. • read trade publications pertaining to the specific retail industry (grocery, restaurant, hotel/motel, etc.) and discuss new concepts, ideas, and trends and their impact. • plan a facility complete with product allocation specifically designed for the target market selected. • explore and research the different careers relating to the specific retail industry (grocery, restaurant, hotel/motel, etc.). • apply and interview for positions of a fully student-run retail center as well as be evaluated on their performance and progress. • set up and use spreadsheets and other documents for the purpose of measuring sales, controlling and tracking inventory, and making decisions from information gathered. • apply the basic formulas involving markup, markdowns, turnover rates, perpetual inventory, shrinkage, and net profit calculations. • make specific suggested improvements for store operation based on previous and current years' experience. • utilize activities of DECA as an integral component of course content and leadership development. • demonstrate interpersonal management skills and provide training to new employees. • participate in a work-based learning experience (i.e., co-op, shadowing, mentoring, internship, etc.). • apply math and communication skills within the technical content. • demonstrate employability and social skills relative to the career cluster.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • National Retail Skill Standards • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Retail Services II

Course Description: This course is a continuation of Retail Services I and is designed to provide additional training and skill development necessary for success in mid-management, specialist, or supervisory positions in the retail marketing services area through the operation of an in-school enterprise such as a school store, restaurant, or other retail enterprises. Students should be involved in all parts of the operation of this enterprise (buying, pricing, sales promotion, product and service technology, etc.), and the enterprise should include all activities associated with the operation of a similar enterprise outside the school. Training agreements and plans related to the occupational training received are to be kept up to date and on file in the teacher's files. Leadership development will be provided through DECA.

SUGGESTED PREREQUISITE: Retail Services I and Special Permission of the Instructor

Academic Expectations	Content/Process
<p>1.10, 1.12, 2.16 5.1, 5.5, 6.1</p> <p>2.9, 2.18, 2.30</p> <p>2.36, 5.1, 5.4</p> <p>2.14, 2.37, 2.38</p> <p>1.16, 2.1, 2.2</p> <p>2.8, 2.13, 2.18</p> <p>6.2, 6.3</p> <p>1.12, 5.4</p> <p>5.2, 5.5, 2.37</p> <p>6.1, 6.2</p> <p>2.36, 2.37</p> <p>1.9, 1.10</p>	<p>Students will</p> <ul style="list-style-type: none"> • develop customer-service skills, employee/employer relations and other human relations skills. • read trade publications pertaining to the specific retail industry (grocery, restaurant, hotel/motel, etc.) and discuss new concepts, ideas, and trends and their impact. • plan a facility complete with product allocation specifically designed for the target market selected. • explore and research the different careers relating to the specific retail industry (grocery, restaurant, hotel/motel, etc.) • apply and interview for positions of a fully student-run retail center as well as be evaluated on their performance and progress. • set up and use spreadsheets and other documents for the purpose of measuring sales, controlling and tracking inventory, and making decisions from information gathered. • apply the basic formulas involving markup, markdowns, turnover rates, perpetual inventory, shrinkage, and net profit calculations. • make specific suggested improvements for store operation based on previous and current years' experience. • utilize activities of DECA as an integral component of course content and leadership development. • demonstrate interpersonal management skills and provide training to new employees. • participate in a work-based learning experience (i.e., co-op, shadowing, mentoring, internship, etc.). • demonstrate employability and social skills relative to the career cluster. • apply math and communication skills within the technical content.
<p style="text-align: center;">Connections</p> <ul style="list-style-type: none"> • National Retail Skill Standards • Secretary's Commission on Achieving Necessary Skills (SCANS) 	

Salesmanship

Course Description: This course is designed to inform students about specific selling techniques needed by salespeople. Major topics include: focusing attention on serving customers and helping them make informed buying decisions, information on the importance of human relations, functions performed by salespeople, developing personality traits needed by salespeople, and the buying/selling process. Leadership development will be provided through DECA.	
Academic Expectations	Content/Process
1.2, 1.12, 2.16	Students will <ul style="list-style-type: none">develop an understanding of customer service and meeting the needs of customers.
1.10, 6.3	<ul style="list-style-type: none">identify various methods of defining consumer profiles and determine how prospective customers are found.
6.2	<ul style="list-style-type: none">identify the role of the sales staff accessing sources of information and ideas for careers in selling.
2.10, 2.22	<ul style="list-style-type: none">identify special promotion activities by observing a real-life sales demonstration.
2.22, 2.10	<ul style="list-style-type: none">prepare a visual merchandise display using hands-on experience in a retailing store.
2.22, 2.30, 5.2	<ul style="list-style-type: none">determine a promotional objective by working in a cooperative work group in selling a new product.
2.2, 2.30, 5.3	<ul style="list-style-type: none">implement a promotional plan after shadowing a sales associate; then develop a sales presentation for that plan.
1.12, 5.4	<ul style="list-style-type: none">utilize activities of DECA as an integral component of course content and leadership development.
2.36, 2.37	<ul style="list-style-type: none">demonstrate employability and social skills relative to the career cluster.
1.9, 1.10, 1.12	<ul style="list-style-type: none">apply math and communication skills within the technical content.
Connections	
<ul style="list-style-type: none">National Retail Skill StandardsSecretary's Commission on Achieving Necessary Skills (SCANS)	

Sports and Entertainment Marketing

Course Description: This course is designed to provide training of skills necessary for positions in the Sports and Entertainment field and expose the students to jobs at the mid-management, specialist, or supervisory level. Instruction includes marketing skills, skills and techniques of advertising and promotions, psychology of selling, and management associated with the marketing of leisure-time activities and events. Leadership development will be provided through DECA.	
Academic Expectations	Content/Process
	Students will
1.16, 2.33, 5.1	<ul style="list-style-type: none">conduct market research and develop knowledge of its importance to sports and entertainment marketing.
2.36, 5.4	<ul style="list-style-type: none">develop an understanding of career opportunities in the sports and entertainment industry.
1.10, 5.1	<ul style="list-style-type: none">demonstrate a fundamental knowledge of marketing concepts as they relate to sports and entertainment.
1.11, 5.1, 5.2	<ul style="list-style-type: none">plan, conduct, and evaluate a sporting and or entertainment event.
1.12, 5.4	<ul style="list-style-type: none">utilize activities of DECA as an integral component of course content and leadership development.
2.35, 5.3, 5.4, 6.1	<ul style="list-style-type: none">develop an understanding of marketing functions and strategies as they apply to sports and entertainment.
1.9, 1.10, 1.12	<ul style="list-style-type: none">apply math and communication skills within the technical content.
2.17, 2.18, 2.33	<ul style="list-style-type: none">develop knowledge of the concepts of ethics and social responsibility.
1.16, 2.38	<ul style="list-style-type: none">develop employability skills including the creation of a resume, letter of application, and application form.
2.36, 2.37	<ul style="list-style-type: none">demonstrate employability and social skills relative to the career cluster.
Connections	
<ul style="list-style-type: none">National Retail Skill StandardsSecretary's Commission on Achieving Necessary Skills (SCANS)	

Travel and Tourism Marketing

Course Description: This course is designed to provide an overview of employment opportunities in the travel and tourism industry. Instruction includes career awareness, domestic travel, international travel, customer service, leadership development, communication skills, attitude and personality development, sales techniques, and promotions. The course is designed to stress the role of customer service in all segments of travel and tourism. Leadership development will be provided through DECA.	
Academic Expectations	Content/Process
1.12, 1.16, 2.16 2.36, 2.37	Students will <ul style="list-style-type: none"> develop customer-service skills for use in travel and tourism. investigate career planning in the increasingly complex world of work and make appropriate decisions about career choices.
2.36, 2.36, 5.4, 6.3 1.10, 1.11, 1.12 6.1, 6.2, 6.3	<ul style="list-style-type: none"> develop appropriate attitudes about the world of work. experience a broad overview of travel and tourism marketing. develop an understanding of emerging trends in travel and tourism industry.
2.36, 5.3, 5.5	<ul style="list-style-type: none"> recognize how to prepare for and advance in the travel and tourism industry.
1.4, 2.19	<ul style="list-style-type: none"> reinforce basic skills in communication, geography, human relations, and reading.
1.10, 5.1, 6.1	<ul style="list-style-type: none"> develop an understanding of travel and tourism marketing and the importance of the marketing concept.
2.17, 2.19	<ul style="list-style-type: none"> explain how to function as responsible citizens.
1.12, 5.4	<ul style="list-style-type: none"> utilize activities of DECA as an integral component of course content and leadership development.
1.9, 1.10, 1.12	<ul style="list-style-type: none"> apply math and communication skills within the technical content.
2.36, 2.37	<ul style="list-style-type: none"> demonstrate employability and social skills relative to the career cluster.
Connections <ul style="list-style-type: none"> National Retail Skill Standards Secretary's Commission on Achieving Necessary Skills (SCANS) Council on Hotel, Restaurant and Institutional Education (CHRIE) Standards 	

PATHWAY TO CAREERS

Course Title	Recommended Grade Level							Recommended Credit
	6	7	8	9	10	11	12	
Career Choices	x	x	x					N/A
Career Choices				x				½
Career Options: Level I				x	x	x	x	1
Career Networking: Level II					x	x	x	1
Career Work Experience: Level III						x		3*
Career Work Experience: Level IV							x	3*

* High school credit for this course is to be determined at the district level based on the number of hours students are working in business/industry.

Overview of Pathway to Careers

Pathway to Careers is a program area in vocational-technical education which provides a continuum of career education experiences. Career Choices in the middle school is an exploratory course which introduces students to a broad range of career opportunities. For secondary students, Career Options and Career Networking offer opportunities to develop job finding and keeping skills and focus on orientation and exploration in the fourteen career clusters. Upon completion of Career Options and Networking students may select a career major or Career Work Experience to complete his/her program.

Incorporated in the Pathway to Careers curriculum are basic concepts of human relations, life skills, overview of career clusters and opportunities for work-based learning.

These courses are open to all students and provisions are to be made for meeting the diverse needs of all learners. The Pathway to Careers program is based upon needs assessment of students including vocational assessment and Individual Graduation Plans.

CONTINUUM FOR PATHWAY TO CAREERS PROGRAM

6th, 7th, 8th and/or 9th Grades	9th Grade	10th Grade	11th Grade	12th Grade
Career Choices *	Career Options (Level I)	Career Networking (Level II)	Career Major: Students may pursue courses in one of the fourteen career clusters. or	Career Major: Students may pursue courses in one of the fourteen career clusters. or
Career Choices *	Career Options (Level I)	Career Networking (Level II)	Career Work Experience (Level III)	Career Work Experience (Level IV)

It is recommended that teachers participate in a workshop designed for Pathway to Careers Program.

It is expected that persons teaching Career Options, Career Networking and Career Work Experience participate in 50 hours of career externship experience in business and industry over a period of five years.

* It is recommended that teachers participate in a workshop designed for Career Choices.

Career Choices

Course Description: This course is designed for middle school students and introduces them to a broad range of career opportunities available in today’s society. It includes assessment of students aptitudes and abilities, interests, and learning styles in order to assist them in identifying careers and planning a career path. Instruction will also provide opportunities for student interaction with professionals through field trips, shadowing, and mentoring.	
Academic Expectations	Content/Process
1.1, 1.6, 2.36	Students will <ul style="list-style-type: none">develop an awareness of the broad range of career opportunities and introduce them to the career cluster concept.
1.1, 1.3, 2.36	<ul style="list-style-type: none">demonstrate the ability to use a variety of current labor market information and resources, such as computer software and personal interviews to analyze career opportunities.
1.1-1.3, 2.37	<ul style="list-style-type: none">identify and apply basic academic skills relevant to the duties of a variety of careers.
2.37	<ul style="list-style-type: none">demonstrate employability and social skills relative to careers.
2.36	<ul style="list-style-type: none">identify skills that a variety of careers have in common and that are transferable among many careers.
2.37	<ul style="list-style-type: none">exhibit productive work habits, attitudes, and social skills.
2.31	<ul style="list-style-type: none">recognize proper safety standards and hazards associated with duties of a variety of careers.
2.37	<ul style="list-style-type: none">participate in shadowing and mentoring experiences in the workplace.
2.36, 1.16	<ul style="list-style-type: none">analyze individual interests, aptitudes and attitudes and relate to career planning.
2.38	<ul style="list-style-type: none">examine skills that are needed to being accepted into college or other postsecondary training or to get a job.
2.36	<ul style="list-style-type: none">update Individual Graduation Plan
Connections <ul style="list-style-type: none">Secretary’s Commission Achieving Necessary Skills (SCANS)	

Career Options - Level I

Course Description: Career Options is a course at the secondary level focusing on orientation to careers. The course is designed for all students, including special populations. Course content focuses on orientation to 14 career clusters, employability skills, self-management and work ethics. Opportunities are provided for the development of problem solving, decision making, reasoning and learning/study skills through school and work-based learning experiences.	
Academic Expectations	Content/Process
	Student will <ul style="list-style-type: none"> explain the purpose of work in society. explore the role of teamwork. demonstrate communication skills such as positive criticism, listening, speaking and writing. assess interest, aptitude and learning styles. relate assessment results to career planning. relate desired lifestyle to career decision making process. explain the concept of career clusters. explore and practice basic and related skills in each of the 14 career clusters. determine education or training required in various jobs in the career clusters. apply mathematic skills in determining wages for various job clusters. identify basic items a person might need when applying for a job. demonstrate ability to apply for items such as birth certificate, social security number, high school transcript, WE Card, W-4, and Employment Eligibility Verification (I-9). identify ways to locate job openings. demonstrate basic knowledge of applying for a job, including résumé letters of application, job applications, and interviews. demonstrate appropriate work ethics and work habits in the classroom and in job exploration settings. identify expectations of employers for employees. demonstrate grooming practices appropriate for the work place. demonstrate general on-the-job safety practices. participate in one or more work-based learning experiences such as job shadowing and service learning. identify labor laws and regulations affecting students. demonstrate appropriate safety practices at the job shadowing site. update Individual Graduation Plan.
	Connections <ul style="list-style-type: none"> Secretary's Commission Achieving Necessary Skills (SCANS) National Occupational Information Coordinating Committee (NOICC) Career Development Competencies

Career Networking - Level II

Course Description: Career Networking continues the Career Option course and provides opportunities for exploration of the career clusters with an in-depth focus on two or more clusters. The curriculum includes a continuum of employability and computer skills needed in the workplace. Upon completion of the course, students have an opportunity to select a career major.	
Academic Expectations	Content/Process
	Student will
1.2, 6.2	<ul style="list-style-type: none"> identify components of Career Networking course.
1.4, 5.2	<ul style="list-style-type: none"> explain the role of work-based learning.
2.36, 5.4	<ul style="list-style-type: none"> use decision-making process in career planning.
2.36	<ul style="list-style-type: none"> review career opportunities in chosen career clusters.
2.38, 5.3	<ul style="list-style-type: none"> compare and contrast sources used in finding a job.
2.38, 5.3	<ul style="list-style-type: none"> locate job leads in chosen clusters.
1.12, 2.36	<ul style="list-style-type: none"> describe occupations in the student's chosen career clusters.
1.16, 2.38	<ul style="list-style-type: none"> develop a formal résumé for career portfolio.
1.16, 2.38	<ul style="list-style-type: none"> compose letters to use in seeking or terminating employment.
1.11, 2.38	<ul style="list-style-type: none"> complete job application, identifying standards by which employers judge applications.
2.38	<ul style="list-style-type: none"> identify documents needed for an interview.
2.38, 6.3	<ul style="list-style-type: none"> demonstrate techniques used in interviewing.
1.12, 2.38	<ul style="list-style-type: none"> develop interview follow-up materials.
2.36, 5.3	<ul style="list-style-type: none"> locate and use local, state and national labor market information.
2.36, 5.3	<ul style="list-style-type: none"> complete in-depth exploration in two or more chosen career clusters.
1.2, 1.3, 6.3	<ul style="list-style-type: none"> recognize the role of technology in current and future job markets.
1.16, 6.1	<ul style="list-style-type: none"> describe the uses and benefits of the computers in student's chosen career clusters.
2.37	<ul style="list-style-type: none"> demonstrate effective techniques for teamwork.
2.37	<ul style="list-style-type: none"> recognize work ethics needed for success on the job.
5.1	<ul style="list-style-type: none"> develop skills in solving barriers to employment.
5.4	<ul style="list-style-type: none"> recognize health and safety practices in the workplace.
2.37, 6.3	<ul style="list-style-type: none"> recognize the role of pre-employment testing in the workplace.
5.5	<ul style="list-style-type: none"> identify how unions, professional membership, and labor laws affect employment.
2.37	<ul style="list-style-type: none"> participate in workplace learning such as internship/work experience,
2.37	<ul style="list-style-type: none"> describe workplace evaluation procedures.
2.33, 2.18	<ul style="list-style-type: none"> develop independent living skills.
5.4, 6.3	<ul style="list-style-type: none"> identify how family expectations and lifestyles can impact the worker and employer.
2.36	<ul style="list-style-type: none"> identify career expectations and update Individual Graduation Plan.
Connections	
<ul style="list-style-type: none"> Secretary's Commission Achieving Necessary Skills (SCANS) National Occupational Information Coordinating Committee (NOICC) Career Development Competencies 	

Career Work Experience - Level III & IV

Course Description: Career Work Experience is a course at the secondary level focusing on cooperative work experience for students at the 11 th and 12 th grades. The course is designed for all students, and the Individual Graduation Plan (IGP) will be a useful tool in determining enrollment in the course. Career Work Experience includes a related class and cooperative work experience in business and industry.	
Academic Expectations	Content/Process
	Student will
5.4	<ul style="list-style-type: none"> identify program expectations for Career Work Experience.
5.4	<ul style="list-style-type: none"> develop a training plan for on-the-job training.
2.37	<ul style="list-style-type: none"> participate in career work experience.
6.3	<ul style="list-style-type: none"> exhibit competencies/skills necessary for the chosen job.
6.3	<ul style="list-style-type: none"> identify skill areas needed for the specific job.
2.38	<ul style="list-style-type: none"> apply for employment, using application form, résumé, letter of application, interviews, and other employment forms.
2.37	<ul style="list-style-type: none"> demonstrate regular and punctual attendance.
2.37	<ul style="list-style-type: none"> exhibit appropriate on-the-job behavior.
5.5	<ul style="list-style-type: none"> demonstrate effective teamwork on the job.
2.37	<ul style="list-style-type: none"> exhibit proper appearance and dress for the job.
2.31	<ul style="list-style-type: none"> select ways to maintain health and fitness for the job.
2.31	<ul style="list-style-type: none"> accept constructive criticism.
2.15	<ul style="list-style-type: none"> summarize information concerning local, state, and federal labor laws affecting work experiences.
2.37, 1.11	<ul style="list-style-type: none"> exhibit effective communication skills on the job.
2.37, 2.31	<ul style="list-style-type: none"> demonstrate safety procedures on the job.
2.33	<ul style="list-style-type: none"> utilize appropriate transportation to and from work site.
6.2, 2.8, 1.9	<ul style="list-style-type: none"> use basic math application in relation to paychecks, banking, and taxes.
1.16	<ul style="list-style-type: none"> utilize technology on the job.
1.9, 2.8	<ul style="list-style-type: none"> make financial decisions relating to effective use of pay checks.
6.2, 1.2	<ul style="list-style-type: none"> explain work benefit packages.
5.4	<ul style="list-style-type: none"> apply the decision-making process to problems that arise on the job
2.37, 2.16	<ul style="list-style-type: none"> identify reasons for job dismissal.
2.37	<ul style="list-style-type: none"> describe procedures to follow when changing jobs.
2.37	<ul style="list-style-type: none"> identify ways to advance at work.
5.3	<ul style="list-style-type: none"> identify the role of union and professional memberships in the world of work.
2.37	<ul style="list-style-type: none"> describe qualities of good leadership.
5.4, 6.2	<ul style="list-style-type: none"> utilize time management skills.
2.36	<ul style="list-style-type: none"> update transition plans.
Connections	
<ul style="list-style-type: none"> Secretary's Commission Achieving Necessary Skills (SCANS) National Occupational Information Coordinating Committee (NOICC) Career Development Competencies. 	

LEADERSHIP DYNAMICS

Course Description: This course is designed to assist students with developing skills needed to be successful leaders and responsible members of society. The student will develop personal attributes and social skills. Emphasis will be placed on interpersonal skills, team building, communication, personal development and leadership. This course will include opportunities for students to apply their knowledge.	
Academic Expectations	Content/Process
2.37, 2.38, 2.36, 3.0, 4.0 2.14, 2.17 2.14 2.14, 2.31, 2.32 1.11, 2.16, 6.2 2.14, 2.16 2.26, 2.37, 5.4, 6.2 2.29, 2.37, 3.0 1.10, 2.14, 2.16, 2.25, 5.1, 5.3, 5.5 2.3, 2.14, 2.16, 6.2 2.37, 3.0 2.37, 3.0 2.37, 2.14, 2.16 2.17 5.4, 6.3	The student will: <ul style="list-style-type: none"> • develop personal and group goals. • compare the types of leadership styles. • assess the importance of qualified leaders to the success of organizations. • appraise personal characteristics of successful leaders. • develop verbal and non-verbal communication skills to enhance success in school and transition to the world of work. • demonstrate appropriate business/professional etiquette. • demonstrate shared decision making. • develop techniques to resolve conflicts that occur in school, home, community, and workplace (interpersonal team skills). • demonstrate the use of parliamentary procedure skills in presiding over a meeting. • describe how ethical and social behaviors affect our lives. • identify self management techniques. • identify stress management techniques. • analyze organizational structures and their components (including bylaws, officers, committees, and program of work.) • demonstrate awareness of cultural diversity and equity issues. • analyze leadership opportunities available in the school and community.
Connections <ul style="list-style-type: none"> • DECA FBLA • FFA • FHA/HERO • HOSA • TSA • VICA • Career Association • SCANS 	

(JKG is not a Vocational Education Program eligible for Vocational Education funding.)

JOBS FOR KENTUCKY'S GRADUATES

Course Title	Recommended Grade Level				Recommended Credit
	9	10	11	12	
Opportunity Awareness I (OAP I)	x	x			1 Credit
Opportunity Awareness II (OAP II)			x		1 Credit
JAG Career Transition				x	1 Credit

Overview of Jobs for Kentucky's Graduates

Jobs for Kentucky's Graduates (JKG) is a course offered in vocational/technical education. The JKG multi-year model is one of the nation's largest most consistently applied model of school-to-career transition for "at-risk" and disadvantaged youth. The program was implemented in Kentucky in 1993 to assist schools to reduce the drop out rate and ease school-to-career transition for the targeted youth. The model is based on six (6) major competency areas: *career development, job attainment, job survival, basic skills, leadership and self-development, and personal skills.*

JKG "In-School" goals are: to see that students complete their high school education, improve employability skills, develop job readiness skills, such as personal motivation, ability to work in groups, set goals and strong communication skills. "Post-Graduate" goals seek to increase opportunities for participants to make a smooth and an immediate transition from school into the workforce, and improve the likelihood that participants will avoid unemployment and if so, that this period will be relatively short.

The JKG curriculum entails the inclusion of the Career Association. This association embodies a fundamental purpose of the JAG program: to provide motivation and practical strategies to help young people succeed in school and on the job. The Career Association is a student-led organization for career-minded students who are interested in preparing themselves to enter the work force. Career Association activities are offered to *develop, practice* and *refine* skills necessary for personal academic and career success.

Provisions are made to meet the needs of diverse learners. Based on a needs assessment and the Individual Graduation Plan, supplementary services and support personnel may be provided to assist students and teachers. Supplementary services deemed appropriate for diverse learners may include special populations coordinator, technical liaison coordinator, teacher aides, tutors, vocational improvement program and special instructional materials.

JAG CAREER TRANSITION

Course Description: This course provides students with critical skills such as job attainment and job survival. Students will be able to function effectively in team and group projects on the job. Students will acquire skills that are important to job development and job placement. Students will utilize activities of the JKG Career Association as an integral component of course content and leadership development.	
Academic Expectations	Content/Process
2.36, 2.38 2.36, 2.38 2.31 2.37 5.1 2.36, 2.37 2.38 2.36 2.38 2.38 1.11, 2.38 2.38 2.37 2.17, 2.18 2.37 2.37 2.37 1.2 1.4 2.38 5.3 1.1, 1.5-9 2.17, 2.32 2.17, 2.32 2.25 1.5-9, 2.1, 2.7 2.36, 2.37, 3.8	Students will <ul style="list-style-type: none"> • identify occupational interests, aptitudes and abilities. • relate interests, aptitudes and abilities to appropriate occupations. • identify a desired life style and relate to a desired career field. • identify alternative career paths for a career field. • select an entry-level job in a chosen career field which will lead to a desired career. • compose a career goal and plan. • compose a resume. • conduct a job search. • prepare a letter of application. • use the telephone to schedule an interview. • complete employment and educational application forms. • demonstrate successful interviewing techniques. • demonstrate appropriate appearance for entry level and career employment. • demonstrate employability and social skills relative to the career clusters. • understand what employers expect of entry level and career employees. • respond to situations using effective interpersonal relationship skills. • demonstrate how to quit a job in a positive manner. • respond to verbal and nonverbal messages in ways that demonstrate understanding. • comprehend written documents. • create documents that are clear, appropriate to the audience and exhibit good practices. • apply verbal and nonverbal communication to achieve an objective. • select and use appropriate computation techniques to solve problem and determine results. • demonstrate team membership. • demonstrate team leadership. • demonstrate presentations in varied settings. • apply math, science and communication skills within the technical content. • demonstrate employability and social skills relative to the JAG competencies.
	Connections <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • Jobs for America's Graduates (JAG, Inc.) Competencies

OPPORTUNITY AWARENESS PROGRAM I

Course Description: This course introduces career awareness on the part of the student's individual aptitudes, abilities, interests, life goals, and desired life styles. Students should be able to develop critical skills to success on the job and in everyday life. Students will utilize activities of the JKG Career Association as an integral component of course content and leadership development.	
Academic Expectations	Content/Process
2.36, 2.38 2.36, 2.38 2.31 5.1 1.4 1.1 5.3 1.1, 5.4 2.17, 2.32 2.17, 2.32 1.16, 2.25 2.17 2.14 2.17, 2.18 2.17 2.14 5.1 2.33, 5.1 2.14 1.2 2.29, 2.36, 2.38 2.29 1.5-9, 2.1, 2.7, 2.18 2.29 2.36, 2.37, 2.38	Students will <ul style="list-style-type: none"> • identify career interests, aptitudes and abilities. • relate interests, aptitudes, and abilities to a desired career field. • identify a desired life style and relate to a desired career filed. • respond to verbal and nonverbal messages in ways that demonstrate understanding. • comprehend written documents. • compose documents that are clear, appropriate to the audience and exhibit good practices. • apply verbal and nonverbal communication to achieve an objective. • select and use appropriate computation techniques to solve problems and determine results. • demonstrate team membership. • demonstrate team leadership. • demonstrate presentations in various settings. • compete successfully with peers. • demonstrate commitment to an organization. • demonstrate employability and social skills relative to the career clusters. • demonstrate types of maturity. • identify a self-value system and how it affects life. • formulate decisions on values and goals. • apply decision-making skills to personal and work settings. • demonstrate ability to assume responsibility for actions and decisions. • respond to situations in a positive and proactive manner. • demonstrate the methods for developing a healthy self-concept for home, school and the workplace. • utilize activities of the JKG Career Association as an integral component of course content and leadership development. • apply math, science and communication skills within the technical content. • demonstrate employability and social skills relative to the JAG competencies.
Connections <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • Jobs for America's Graduates (JAG, Inc.) Competencies 	

OPPORTUNITY AWARENESS PROGRAM II

Course Description: This course will provide students with the opportunity to develop a career path for a selected occupation and select an immediate job goal. Students will be introduced to skills needed for job development and placement. Students will utilize activities of the JKG Career Association as an integral component of course content and leadership development.	
Academic Expectations	Content/Process
2.36 2.37 2.36 5.1 1.4 1.1 5.3 1.1, 5.4 2.17, 2.32 2.17, 2.32 1.16, 2.25 2.17 2.14 2.17, 2.18 2.14 6.3 2.33, 5.1 2.14 1.2 2.29 2.29 1.5-9,2.1, 2.7, 2.18 2.36, 2.37, 2.38	Students will <ul style="list-style-type: none"> • develop a career path for a selected occupation. • select an entry level job in a chosen career field which will lead to a desired career. • describe the conditions and specifications of the job goal. • respond to verbal and nonverbal messages in ways that demonstrate understanding. • comprehend written documents. • compose documents that are clear, appropriate to the audience and exhibit good practices. • apply verbal and nonverbal communication to achieve an objective. • select and use the appropriate computation techniques to solve problems and determine results. • demonstrate team membership. • demonstrate team leadership. • deliver presentations to a group. • compete successfully with peers. • demonstrate commitment to an organization. • demonstrate employability and social skills relative to the career clusters. • identify a self-value system and how it affects life. • explain the impacts of beliefs and values on decision making. • apply decision making skills to personal and work settings. • demonstrate ability to assume responsibility for the actions and decisions. • respond to situations in a positive and proactive manner. • develop healthy self-concept for home, school and work. • utilize activities of the JKG Career Association as an integral component of course content and leadership development. • apply math, science and communication skills within the technical content. • demonstrate employability and social skills relative to the JAG competencies.
Connections <ul style="list-style-type: none"> • Secretary's Commission on Achieving Necessary Skills (SCANS) • Jobs for America's Graduates (JAG, Inc.) Competencies 	